DOCUMENT RESUME

ED 095 250 UD 014 524

TITLE	Individual Characteristics and Children's Performance in Varied Educational Settings. Progress Report.
INSTITUTION	Spencer Foundation, Chicago, Ill.
PUB DATE	Aug 74
NOTE	273p.; School Environment Preference Schedule (SEPS), a two-page copyrighted questionnaire, has been deleted from this document
EDRS PRICE	MF-$0.75 HC-$12.60 PLUS POSTAGE
DESCRIPTORS	*Academic Achievement; Academic Aspiration; Classroom Environment; Educational Environment; *Elementary Schools; Elementary School Students; Individual Characteristics; *Open Education; School Environment; *Student Characteristics; Student Motivation; *Traditional Schools
IDENTIFIERS	Maryland; Montgomery County Public Schools

ABSTRACT

This report describes work done on the project, "Individual Characteristics and Children's Performance in Varied Educational Settings," up to June 30, 1974. This research addresses two issues: the interaction of individual student characteristics with aspects of educational environments, and the relative educational benefits of "open" vs. "traditional" classrooms. It combines the two issues by investigating the possibility that each type of classroom has advantages for certain types of students and disadvantages for other types of students. The present project also has as a major focus the investigation of the possibility that certain cognitive and motivational characteristics of individual children may interact with these classroom dimensions to effect a combined influence on educational outcomes. The research plan called for an initial pilot study, to be done in six classrooms, three open and three traditional, whose primary purpose would be to develop and refine instruments, measurement techniques, and analysis procedures; and a subsequent main study, to involve a much larger number of classrooms, so that measures of more specific and descriptive dimensions than "open" and "traditional" could be obtained and investigated for direct effects on educational outcomes as well as for interactions with the individual child characteristics. (Author/JM)

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Progress Report

Individual Characteristics and Children's Performance in Varied Educational Settings

August, 1974

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Spencer Foundation Project

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INTRODUCTION

This report describes work done on the project, "Individual Characteristics and Children's Performance in Varied Educational Settings" up to June 30, 1974. Although work on the pilot and the main study have gone on concurrently during the past year, the two will be described in separate sections, after a general framework for the research is set forth in this section.

This research addresses two issues: the interaction of individual student characteristics with aspects of educational environments, and the relative educational benefits of "open" vs. "traditional" classrooms. It combines the two issues by investigating the possibility that each type of classroom has advantages for certain types of students and disadvantages for other types of students.

The notion that particular children may enjoy and perform well in classrooms which are consistent with their learning styles, needs, interests, motives and/or values is not a new one but has only recently become the focus of concentrated research attention, under the various names "trait-treatment interaction", "attribute-treatment interaction", "aptitude-treatment interaction", or, more generally, "person-environment interaction". Recent reviews of this area, including discussion of theoretical and methodological issues, have been presented by Cronbach and Snow (in press), Berliner and Cahen (1973), and Bracht (1970). Much of this research has employed short-term experiments and most of it has used college students as subjects. In one of the most comprehensive of these studies, McKeachie (1961) found that students with strong needs for affiliation did best in classes of "warm" teachers; intelligent students and those with strong needs for power did best in classes which provided them with opportunities for assertion; students with strong needs for achievement did best with teachers who provided many "achievement cues"; and anxious students did best in classes which were clearly organized and structured.

Grimes and Allinsmith (1962) reported some similar results concerning anxiety: highly anxious (and compulsive) children progressed better in reading with a structured (phonic) treatment than with an unstructured (whole word) treatment. Dowaliby and Schumer (1973) found that anxious students learned best in "teacher-centered" (rather than "student-centered") classes, while Tallmadge and Shearer (1971) found that anxious subjects did better with an "inductive discovery" treatment and that low-anxious subjects did better with an "expository deductive" treatment. Calvin, Hoffman, and Harden (1957) found that less intelligent students did better when problem-solving sessions were conducted in an authoritarian rather than a permissive manner, while more intelligent students did equally well with either approach. Hunt (1971) reviewed a number of studies showing that a "match" between the "conceptual level" of a student and the structuredness of a program related to optimal gains.

Beach (1960) demonstrated that "sociable" college students learned more in a small-group section, while less sociable students learned more in a lecture section of a college course. In a study by Domino (1971), students scoring high on the personality measure, "achievement via conformance" learned most and were most satisfied in a class taught in a "conforming" way (lectures, high structure), while those scoring high on "achievement via independence" did so in one taught in an "independent" way (active student participation, unstructured). Haigh and Schmidt (1956) gave students the choice of being in directive or nondirective classes and found, as they predicted, no differences in outcome between the groups, each being in its preferred setting. The study is flawed, however, by the lack of control groups.

White and Howard (1970) found that underachieving 7th grade boys who believed that the outcomes of their efforts were externally controlled did better in a self-directed than a teacher-directed class, while those boys who believed that they themselves were responsible for the outcomes of their efforts did equally well in either type of class. The same independent variable, "locus of control" was used in a study by Judd (1974) with somewhat different results: he found that those believing in internal responsibility for outcomes tended to have more positive concepts of themselves as learners and more positive attitudes toward school when in "open-space" schools, while those believing in external responsibility for outcomes had more positive self-concepts and school attitudes in traditional schools.

McKeachie (1963) has summarized some of the studies in this area as showing "...that a certain type of student, characterized as independent, flexible, or in high need for achievement, likes and does well in classroom situations which give students opportunity for self direction." (p. 1158). Since open education characteristically provides students with extensive opportunity for self-direction, this statement bears direct implications for open education, even though the studies on which it was based were not concerned with this form of education as a distinct and separable category.

In the past several years, a great deal has been written about "open education"--some describing it, some promoting it, some dispassionate, some polemical (e.g., Plowden, 1967; Blackie, 1967; Kohl, 1969; Silberman, 1970; Featherstone, 1971; Hassett and Weisberg, 1972). Several attempts have been made to analyze the characteristics of open education in terms of basic dimensions (Bussis and Chittenden, 1970; Walberg and Thomas, 1971), and classroom inventories and observation forms have been developed in order to determine objectively the degree to which various classes meet the several criteria of "openness" (Walberg and Thomas, 1971, Traub, Weiss, Fisher, and Musella, 1972). Until quite recently, very little evaluative research had been done on open education; the research output has begun to accelerate in the last two or three years.

The most inclusive study to date, in terms of the variety of variables considered, is probably that of Minuchin, Biber, Shapiro, and Zimiles (1969). A small number of "traditional" and "modern" schools were compared and found not to differ on standard measures of academic performance, but to show differences favoring students in the "modern" schools in cooperativeness, efficiency in working in groups, interpersonal warmth, and creativity. Questions have been raised about the comparability of the "traditional" and "modern" schools in this study, however.

In another study, Haddon and Lytton (1968) compared creativity measures of British 11-12 year old children in "formal" and "informal" schools just prior to completing their "primary" school careers. The formal and informal schools were different mainly in that the latter emphasized self-initiated learning to a much greater degree. Children from the informal schools scored significantly higher on the measures of divergent thinking (creativity), and also showed higher correlations between creativity and intelligence. A follow-up study with the same children after a four-year lapse (Haddon and Lytton, 1971) found that the between-group difference in creativity was maintained. Similar results were obtained by Oberlander and Solomon (1972), showing that students in "multi-grade, multi-age" classrooms scored significantly higher on verbal and nonverbal measures of fluency, flexibility and originality (all components of creativity) than did students in "self-contained" classrooms. Scores on one creativity index, "alternative uses" were found to be higher for children in open classes by Owen, Froman and Calchera (1974), while Wilson, Stuckey and Langevin (1972) found "productive thinking" greater in "open plan" schools. Ramey and Piper (1974) however, reported reversed differences for different types of creativity: children in an open school scored higher on "figural creativity" while those in a traditional school scored higher on "verbal creativity".

Children in open rather than traditional classrooms show more positive attitudes toward school according to studies by Wilson, Stuckey and Langevin (1972), Weiss (1973), and Tuckman, Cochran and Travers (1973). These same studies also found that students in the open classes had more positive self-concepts, although Ruedi and West (1973) did not find significant differences in self-concept between the two types of class. Weiss (1973) also reported evidence of greater independence, initiative and autonomy in open schools, while Wilson et al (1972) found no differences in "curiosity" and Owen et al (1974) found none in "locus of control" between the two types of class.

Varying results have been reported concerning academic achievement in open and traditional schools. Harckham and Erger (1972) found greater reading achievement in British inner-city "informal" than "formal" schools, but found no differences between the two types of schools in suburban areas. No significant differences in academic achievement were found by Tuckman et al (1973) or Owen et al (1974), while Weiss (1973) found higher achievement test scores in traditional than in open inner-city schools and Ruedi and West (1973) found "academic adequacy"(self-rated) to be greater in traditional than in open sixth grade classes.

In summary, the above studies generally show evidence of superiority in creativity for the "informal" or "open" classrooms, mixed results concerning standard indices of academic achievement, and as yet insufficient evidence concerning various psychological characteristics, values, social behavior, self-esteem, orientation to learning and the like. It is interesting that many of these latter characteristics are precisely those which developers of "open" programs have stated as primary goals. Measures of such characteristics constitute an important aspect of the present research. In addition to mixed findings, the above studies present two methodological problems: 1) they used a priori operational definitions of the classroom categories in question ("formal" vs. "informal", "open" vs. "traditional", etc.) and 2) each category was generally represented by a very small number of classrooms. While a priori categorization has the advantage of convenience, it rules out the possibility of discovering that intermediate levels or particular combinations of the elements of the contrasted approaches may in fact be the most effective. It also makes it impossible to determine whether certain components or aspects of a category such as "openness" are more important than others in achieving any effects found, or whether certain aspects are effective only when combined with certain other aspects. Furthermore, representation of a category by a small number of examples increases the likelihood that any differences found between categories may actually be due to extraneous but correlated differences (such as teacher personality, type of student population, locality, and the like).

For these reasons we concluded that the best approach to take in research on these issues, given the current state of knowledge, would be to include a fairly large number of classrooms, to obtain measures of classroom atmosphere and practices, and teacher and student behaviors, relevant to all the dimensions which have been suggested to be crucial to the distinction between "open" and "traditional" education (plus any additional dimensions which seem plausible or theoretically relevant), and to have a broad range of types of classrooms represented so that the effectiveness of all points along these dimensions--not just the extremes--could be investigated.

It is possible that previous research on open education has found relatively few overall significant differences in educational outcomes between open and traditional classes because individual characteristics of the children have not been taken into account. A similar mean score between children in the two types of class may be masking, for example, a positive relationship between an individual characteristic variable and an outcome variable in open classes and a negative relationship between the same two variables in traditional classes.

In addition to investigating the overall (or average) impact of the various classroom dimensions, the present project has as a major focus the investigation of the possibility that certain cognitive and motivational characteristics of individual children may interact with these classroom dimensions to effect a combined influence on educational outcomes. Each of the individual characteristics selected for inclusion in the study was expected to relate to performance differentially in different types of class; i.e. we hypothesized that children with certain characteristics would "fit" best and therefore perform best in particular kinds of classes. These characteristics included the student's intrinsic motivation, achievement motivation, fear of failure, need for approval, structured role orientation vs. personal expression orientation, locus of control, locus of instigation (referring to the degree to which one feels responsible for initiating his own activities), and class characteristics preferences.

A broad range of educational outcomes was also selected, so that those considered important by proponents of each type of education would be represented. Therefore, it was decided to measure standard academic achievement, inquiry skill, creativity, writing skill, attitudes toward self, school, and other children, orientations toward educational tasks, and the children's own evaluations of their learning and their class.

The research plan called for an initial pilot study, to be done in six classrooms, three open and three traditional, whose primary purpose would be to develop and refine instruments, measurement techniques and analysis procedures; and a subsequent main study, to involve a much larger number of classrooms so that measures of more specific and descriptive dimensions than "open" and "traditional" could be obtained and investigated for direct effects on educational outcomes as well as for interactions with the individual child characteristics.

THE PILOT STUDY

The major objectives for the pilot study were to 1) develop, pretest, and establish reliabilities for the various instruments, including the observation system, which were then to be revised and used more extensively in the main study, and 2) to collect preliminary data relevant to the hypotheses concerning the interaction of individual student characteristics and classroom environment characteristics put forth in the original project proposal.

Methods

Data Collection

Data were collected in the spring of 1973 in three relatively "open" and three relatively "traditional" classrooms at the fourth grade level. The classes were not limited to fourth-graders; all of the open and one of the traditional classes also included third-graders. There were a total of 115 4th grade children in the six classes; 92 of them had complete data (56 boys and 36 girls). All classes were in public schools in Montgomery County, Maryland, a largely middle-class county immediately north and northwest of Washington, D.C. The classes were selected after discussions with various school system personnel, including teachers and principals, and some preliminary classroom observations. Two of the selected "open" classrooms were in one school, while the other "open" classroom was in the same school as one of the "traditional" classrooms. One of the open classes was taught by a team of two teachers; each of the other classes was taught (mainly) by one teacher.

During a period of about two months (mid-March to mid-May), each class was visited once by each of four two-person observer teams. Each team stayed in the class for about an hour each time, making observations of general classroom activities, classroom atmosphere, teacher activities, and student activities, with a structured observation system which was in part a "sign" system (Medley and Mitzel, 1963), and in part a series of global rating scales. The sign system section included some items which were adapted from a system developed by Soar (1971). The observer watched the class for a period of five minutes, then went through a long list of activity categories (e.g. "Teacher starts individual on task", "Teacher gives requested help," "student-student academic discussion", "student shifts own activity", "simultaneous individual and group activities"), checking each category that had occurred during the period. When the tallying was completed for that period, another five-minute observation period was begun. Six observation periods were tallied in this way, in each session.

The global ratings were developed in part from our own previous research (Solomon, Bezdek, and Rosenberg, 1963; Solomon, Parelius and Busse, 1969) and in part from the general literature comparing open and traditional education. These atmosphere ratings were on six-point scales and were made after the conclusion of the observation session. Among the items included were: "Ss talk freely - Ss talk only at T direction", "Ss uninvolved in class activities - highly involved in class activities", "classroom is full of stimuli - devoid of stimuli", "serious - jovial", "Teacher encouraged 'exploration' - discouraged 'exploration'", Teacher constantly gives individual attention - never gives individual attention". The observation form also contained a cover sheet on which the observers noted characteristics of the classroom arrangement (e.g., number of adults present, desk arrangements, amount of student work displayed, accessibility of equipment and materials, etc.). In all, there were 24 cover sheet items, 182 "sign" (behavioral) category items, and 71 global rating items.

The observers had been previously trained with videotapes of three classes not in the study. Their classroom visits were equally balanced between mornings and afternoons. (A copy of the observation form used by the observers was presented in the Appendix of last year's progress report, as were all other instruments used in the pilot study). These pilot study observations were made to develop and improve the observation system for the main study, and to provide objective descriptions of the differences between the "traditional" and "open" classes selected for the pilot study.

In two one-hour sessions in early March, the children in each class were given questionnaires measuring several individual preferences, orientations, and motives. These were designed to measure characteristics of children which we predicted would relate to outcomes differently in open and traditional classes. They were all mutiple choice or paired comparison type indices. Following is a list of these measures, the number of items in each, and two examples of items included in each scale:

Achievement motivation - (20 items). This measure was developed by Wiener and Kukla (1970), and includes these items -

> "I prefer jobs ..(a) that I might not be able to do ..(b) which I'm sure I can do."
>
> "I would choose as work partners ..(a) other children who do well in school ..(b) other children who are friendly."

Personal expression vs. structured role orientation - (12 items). This measure was developed for this research with the expectation that children who state preferences for clearly structured and well-defined situations might perform best in traditional classrooms. Among the items were -

> "I would rather ..(a) be in a place where I know exactly what I am supposed to do ..(b) be in a place where I pick what I want to do."
>
> "I would rather ..(a) follow a time plan, so I know what I'll be doing at different times ..(b) do things as they come, with no time plan".

Fear of failure - (10 items). This measure was also developed for this research.

"I would rather ..(a) keep working on a math problem I haven't been able to solve ..(b) stop working on a math problem that is too hard, and find an easier one."

"I would rather ..(a) tell my answer to a problem only if I'm sure it's right ..(b) tell my answer to a problem if I think it might be right."

Intrinsic-extrinsic motivation - (12 items). This measures one's tendency to strive for the sake of the pleasure of engaging in the activity per se rather than for obtaining rewards from external sources; the measure was adapted from an instrument developed for a previous study (Oberlander and Solomon, 1972), and included these items:

"Peter is reading a book. Why? (a) He wants to find out more about something. (b) His parents like him to read a lot."

"Susan is listening to her teacher. Why? (a) She wants to hear what she is saying. (b) She might get in trouble if she doesn't listen."

Class characteristics preferences - (26 items). This series of items was developed for this research. It asked children to state preferences for different sets of classroom characteristics, many of which were intended to refer to differences between open and traditional classes. Among the items were:

"I would most like a class where ..(a) the kids choose what they want to do ..(b) the teachers and kids together plan what to do ..(c) the teacher plans what the kids will do."

"I would most like a class where ..(a) kids talk to each other or the teacher whenever they want to ..(b) kids can talk only when the teacher calls on them ..(c) kids can talk to each other a little, if it's needed for what they're doing."

Locus of control (Intellectual achievement responsibility) - (34 items). This measure, developed by Crandall, Katkovsky and Crandall (1965), measures a child's acceptance of responsibility for his own successes and failures (as opposed to attributing them to external sources). It produces subscores referring to successes (I+) and failures (I-), as well as a total score. Items include:

"When you have trouble understanding something in school, is it usually
(a) because the teacher didn't explain it clearly, or
(b) because you didn't listen carefully?"

"If you solve a puzzle quickly, is it ..(a) because it wasn't a very hard puzzle, or ..(b) because you worked on it carefully?"

Locus of instigation - (12 items). This measure was developed for this research, based on some theoretical notions discussed by Solomon and Oberlander (1974). It measures the child's belief that he is generally responsible for initiating his own activities. It is differentiated from locus of control in that it refers to the instigation rather than the outcomes of behavior. Items include:

"When I practice an instrument, it is usually because ..(a) I just started without thinking ..(b) I was told to, or had to ..(c) I was asked to, and agreed ..(d) I decided to."

"When I write a story, it is usually because ..(a) I was asked to, and agreed, ..(b) I was told to, or had to ..(c) I just started writing, and it became a story ..(d) I decided to."

Task preference generality-specificity - (12 items). This measure was also adapted from prior research (Solomon, 1972). The child is asked to state his degree of liking for each of a set of 12 varied tasks, using a 6-point rating scale, ranging from "I would like doing this very much" and "I would like doing this fairly well" to "I would dislike doing this pretty much" and "I would hate doing this". Among the rated tasks were "Following complicated directions to put together a model", "making a big snowman with some friends", and "practicing dart throwing to become a better shot." The measure of "generality" is derived by counting the number of strong preferences stated ("very much"). It was thought that those with more specific and narrow preferences might have a greater chance of having these satisfied in an open class.

Social desirability - (48 items). This measure was developed by Crandall, Crandall, and Katkovsky (1965), and refers to the child's tendency to endorse statements that are socially acceptable or socially valued, even when they are not likely to be accurate. This tendency has been thought to relate to a need for approval. The child is asked to state whether each of a series of statements is true or false. Among these statements are:

"When I make a mistake, I always admit I am wrong".

"I never forget to say 'please' and 'thank you'".

Bureaucratic orientation (School environment preference schedule - SEPS) - (24 items). This measure was developed by Gordon (1968), based on Max Weber's theory of bureaucracy. It measures a preference for being guided by established authorities, institutions, and rules, and a general conforming orientation. The child is asked to state his degree of agreement (on a 5-point scale) with a series of items, including:

"A student should always do what his teacher wants him to".

"Older people are in the best position to make important decisions for young people".

In late May, two further questionnaires were given to the children in group sessions. These measured certain values, attitudes, and self-assessments which are included among the educational outcome indices in this research. A list of these, with sample items, follows:

Assertion responsibility - (4 items). This is one of four "democratic attitude" subscores adapted from our previous research (Solomon, Ali, Kfir, Houlihan, and Yaeger, 1972). It refers to one's responsibility to state one's position, even if it seems unpopular or unlikely to prevail. The child was asked to indicate degree of agreement (on 4-point scales) with items including:

> "Four kids are making up some rules for a new game. Three of them agree on a rule; the fourth one doesn't like it. Since the others agree, he should not say anything about it."
>
> "Your family is planning an outing. You already know that everyone else except you wants to go to a museum. You should say what you want to do anyway."

Willingness to compromise - (4 items). Another of the "democratic attitude" subscores, which also asks for the child's agreement or disagreement. Items include:

> "When you know what you think is right, you should stick to it, no matter what anyone says."
>
> "Two kids are trying to decide what to do on a Saturday afternoon. One wants to go to a movie; the other wants to go to the park. Each should just do what he wants to do by himself." (If the child disagreed, he was asked to write, "what you think they should do" and this response was scored for degree of compromise).

Equality of representation - (4 items). Another "democratic attitude" subscore. Among the items were:

> "When the kids in a class at school are voting on something, the kids who are always making noise should not be allowed to vote."
>
> "New members should be in a club for a while before they get to vote on things."

Equality of participation - (4 items). The last of the "democratic attitude" subscores, including the following items:

> "When kids are playing games, the ones who don't know how to play should get to play as much as anyone else."
>
> "Kids who get in trouble on one trip should not get to go on the next trip."

Cooperation vs. Competition - (6 items). This measure was developed for this research. The children were asked to state agreement or disagreement, on

4-point scales, with the following items, among others:

> "Classes are best when everyone tries to do better work than everyone else."

> "Games are most fun when you can just play and don't worry about winning."

Value on group activities - (12 items). This measure was adapted from one used in prior research (Oberlander and Solomon, 1972); it asked for statements of agreement or disagreement (4-point scales). Items included the following:

> "In group projects, things get done quickly, because there are so many to work on them."

> "You learn more by working on math problems by yourself than with a group of kids."

Task self-direction - (6 items). This measure was developed for this research, asked for statements of agreement or disagreement, and included these items:

> "When you want to find out more about something, you should just go to the library and see what you can dig up, without getting help."

> "When you have a problem, you should ask for help right away so you won't waste a lot of time trying to work it out."

Decision-Making autonomy - (10 items). This measure was adapted from previous research (Oberlander and Solomon, 1972), and also asked for agreement or disagreement, on 4-point scales. The items included the following:

> "Teachers should be the ones to decide what kids should work on in school."

> "Kids should be the ones to decide if they need to do homework."

Tolerance for differences (value on heterogeneity) - (4 items). This measure was adapted from prior research (Oberlander and Solomon, 1972), and included the following items:

> "The best kind of neighborhood to live in is one with people who are the same in their hobbies, jobs, and interests."

"Classes are best when most of the kids have the same likes and interests."

Concern for others - (9 items). A measure developed for this research. Among the items included were:

"A kid has enough schoolwork of his own to look after without worrying about other kids'."

"It is important to help a kid who isn't liked by the other kids."

Self-esteem - (12 items). This measure was adapted from one developed by Davidson and Greenberg (1967). Children were asked to state the frequency (on a 5-point scale ranging from always to never) with which each of a series of phrases accurately described them. The following were among the items:

"I think I am:

... a good worker in school"

... not the way I would like to be."

Self- and class-evaluations - (8 items). This was a set of items, developed for this research, asking children to evaluate the class and their own learning and enjoyment during the school year. Included among the items were:

"How much do you think you have learned in school this year?" (Answered with a 5-point scale ranging from "nothing" to "very much.")

"How much fun have you had in school this year?" (Answered with a 5-point scale ranging from "none at all" to "a lot.")

These last two questionnaires also included some items intended to measure children's inquiry skills and creativity. The inquiry items were partially inspired by the research approach of Allender (1968). There were two items (one per questionnaire), each of which set a problem and asked the children to write how they would go about solving it. The first was: "A Problem. You are the mayor of a small city and you are trying to find a good spot to put a new playground. How would you figure out what was the best spot? Write down the things you could do to help you figure it out." The other inquiry item was: "A Mystery. You come home and find your room messed up, although it was neat when you left. You wonder whether it got messed up by the wind, a burglar, or someone just fooling around. How would you figure out which it was? Write down the things you could do to find out." (An earlier version of this item was used, for a different purpose, in our earlier research: Solomon, 1969). The answers for both inquiry items were scored for the number of informative responses, number of indirect responses, number of responses showing a high level of inference, number of responses which ranged beyond the geographical site of the problem, and for the overall completeness of the approach to the problem. In addition, each coder rated the clarity and expressiveness of the child's writing in responding to these inquiry items (on a 5-point scale).

The creativity items were taken from Wallach and Kogan (1965); two each were taken from among the items with the highest item-total correlations in two of their subtests, "uses" and "patterns", as reported in their initial research. The two "uses" items selected were "button" and "cork"; the children were asked to write down as many different uses of each as they could think of. The "patterns" items presented the children with drawings (one of 4 circles next to three sides of a rectangle; the other of five short, parallel, staggered lines); they were asked to write down as many different things as each pattern made them think of. There were no time limits for these items, which were described in the questionnaires (and by the administrators) as "games." The two "uses" items were in one questionnaire (at the beginning); the "patterns" items were in the other questionnaire (also at the beginning), administered on a different day. Each of these items was scored for "fluency" (the number of appropriate responses) and "uncommonness" (the number of responses below a specified frequency of appearance in the total sample; after an examination of the distributions with different percentage cut-off points, it was decided to define an "uncommon" response as one given by 10% of the sample or less for the uses items, and one given by 1.5% of the sample or less for the patterns items. These gave similar, and statistically workable, distributions for the different types of items.) This scoring is similar but not identical to that used by Wallach and Kogan.

The children were also asked their parents' occupations in these questionnaires. These were coded with a 5-point scale, on which 1 represented "unskilled or semi-skilled workers", etc., and 5 represented "executives, ..professionals, owners of large businesses", etc.

Shortly after the administration of the final questionnaires (usually on succeeding days), the California Achievement Test was administered to the fourth-graders, in three separate sessions (each on a different day). Scores of tests the fourth-graders had been given by the school system a year earlier (Iowa Test of Basic Skills, and the Cognitive Abilities Test) were obtained from school records.

Two final sets of information were obtained at the end of the school year from the teachers participating in the study. One, "Teacher Description of Classroom Activities", was a 49-item questionnaire (derived in part from a questionnaire developed by Traub, Weiss, Fisher, and Musella, 1972), in which the teachers made ratings, on 5-point scales, describing the positions of their classes with respect to a number of characteristics (e.g., the amount of free time available to students, participation of children in making rules, defining goals, deciding on classroom arrangement, selecting activities, initiating their own tasks, evaluating their own work, determining their own learning objectives; the amount of time the teacher spends presenting planned lessons, acting as "resource person", acting as discussion leader; the amount of plan changing, number of classroom rules, individuality of learning objectives and timing, amount of structuring and sequencing of tasks, etc.). As with the observation system, this questionnaire was included in this study primarily to develop and improve it for the later study, but it also can help to demonstrate the degree to which the classes considered "open" and "traditional" in the pilot study were actually differentiated. In part, it asked the teachers about some aspects of their classes which might not be easily accessible to observers (e.g. student participation in goal setting, planning and evaluation).

The teachers also provided information about the behavior of individual children via a 30-item rating scale called, "Teacher Views of Students." The teachers were asked to rate each child on each item, with a 5-point scale, and to make the ratings relative to the other children in the class so that a rating of 1 "indicates that the child is in about the lowest fifth of the class with regard to the attribute" and a rating of 5 "indicates that the child is in about the highest fifth." Among the items were: "competitive"; "cooperative", "helpful"; "likes to initiate own tasks"; "strives to achieve"; "respects others' rights"; "impulsive, blurts out"; "physically active"; "undisciplined"; "perseveres with tasks"; "reflective, thinks"; "highly involved in class activities"; "enjoys class"; "socially involved and accepted"; "much overall benefit from class"; "eager to learn"; "creative verbally"; "willing to compromise"; "good self-image"; "tolerant of differences". This scale replaced our original plan to make structured observations of the individual children in the study; the large sample anticipated for the main study made this unfeasible.

Reliability

Internal consistency reliability of the various scales measuring preferences, orientations, motives, attitudes and values was assessed using the Spearman-Brown formula with the mean of inter-item correlations (Guilford, 1956; Nunnally, 1972). (The Self and Class Evaluation items were omitted because they do not comprise a priori scales). A scale was developed from the Class Characteristics Preferences after it was determined which observation and teacher description items clearly and significantly differentiated between the two types of class (see Tables 3, 4, 5, and 6). Those "class characteristics preferences" items from the student questionnaire which described characteristics similar to those which actually differentiated the classes in this study were summed to make a scale which we are calling "preference for open classes" (with "open" and "traditional" operationally defined in terms of the classes involved in this particular pilot study).[1]

The obtained reliability coefficients for the various scales are shown in Table 1. The correlation of each scale with social desirability (showing the degree to which scale responses may be confounded by differences in the social acceptability of the different alternatives) is also shown.

All of these scales were used in the further pilot study analyses. Many of them were revised before being used for the main study, particularly those with inadequate reliabilities. Most of the correlations with social desirability are low and nonsignificant. The scale with the highest correlation, bureaucratic orientation, measures qualities which seem conceptually consistent with a tendency to make socially desirable responses, conformity and reliance on authority; this correlation, then, would seem to be an indication of validity rather than a lack of it.

To get some information about convergent validity, we examined the correlations of scores on the various scales with those teacher ratings of students

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[1] Fourteen items were selected for this scale, involving freedom to get books and materials when needed, occurrence of varied simultaneous activities, children's opportunity to choose own activities, amount of time teacher spends talking to the whole class, freedom of movement within class, freedom of talking in class, amount of teacher individual attention to children, opportunity for students to discuss their work among themselves, cooperation vs. competition, following pre-set plan vs. following immediate interests, presence or absence of regular starting and ending times for different subjects, freedom to manipulate and experiment with new things, presence or absence of regular assigned spot for each child to work, and teacher vs. child decision-making about work activities.

TABLE 1

Internal Consistency Reliability Coefficients for Questionnaire Scales, and Correlations with Social Desirability

Scale	Reliability Coefficient	Correlation with SD
Achievement motivation	.32	.01
Personal expression vs. structured role orientation	.61	-.28*
Fear of failure	.34	.11
Intrinsic motivation	.63	-.20
Intellectual Achievement Responsibility (total)	.77	-.07
I+	.67	-.08
I-	.67	-.03
Locus of instigation	.59	-.05
Task preference generality - specificity	.69	.04
Bureaucratic orientation	.81	.46**
Preference for open classes	.66	-.13
Democratic attitudes[a]	.49	-.32*
Cooperation-competition	.07	-.12
Value on group activities	.54	.07
Task self-direction	.18	-.01
Decision-making autonomy	.73	-.13
Tolerance for differences	.60	-.24*
Concern for others	.47	-.06
Self-esteem	.75	.03
Social Desirability	.88	

a. The individual democratic attitude subscales were unreliable. Summing them produces a score which approaches adequate reliability.

*p $<.05$; ** $<.01$

which were most conceptually similar. (Although substantial correlations between similar measures in the two can be considered evidence of validity, the lack of correlation is not clear evidence of non-validity, since we have no independent knowledge about the adequacy of the teacher ratings as standards of comparison). These correlations are presented in Tables 20 and 21, Appendix A. There is evidence of moderate validity (or nearly so) for intrinsic motivation, achievement motivation, assertion, and democratic values (total), and of fairly strong validity for the measure of self-esteem (r=.36).

The creativity and inquiry items, and writing quality, were all scored by two coders. Correlations between coders for each of these items are shown in Table 2. The scores used in subsequent analyses were summed across the two coders' scores and also across the two items of each type (i.e., the two "uses" item responses were summed, as were the two "patterns" item responses, and the two "inquiry" item responses (including the writing quality rating). Spearman-Brown reliability coefficients based on the correlations between the two items of each type (summed across coders) are also shown in Table 2. (The "percent uncommon responses" categories for the creativity items were obtained by dividing the number of uncommon responses by the total number of responses.)

Convergent validities of the measures of creativity and inquiry skill were assessed by examining their correlations with the most relevant teacher ratings of students--"creative verbally", "creative in use of materials", and "skilled at problem-solving, inquiry". These correlations, shown in Table 22, Appendix A, are fairly substantial for the "Uses" and the "Inquiry" indices, but are low for the "Patterns" indices.

Reliability of each observation system item was assessed with an analysis of variance approach, with classrooms and teams as independent variables.

TABLE 2

Creativity, Inquiry, and Writing Quality Reliability Coefficients

and Inter-Coder Correlations

Type of Item and Coding Category	Inter-Coder Correlations (within items)		Reliability Coefficient (between items)
Creativity: Uses	Item: Button	Cork	
No. appropriate responses	.90	.92	.75
Percent uncommon responses	.88	.92	.73
Creativity: Patterns	Item: Lines	Circles	
No. appropriate responses	.96	.82	.84
Percent uncommon responses	.95	.88	.77
Inquiry	Item: Mystery	Problem	
No. informative responses	.92	.85	.52
No. indirect responses	.84	.48	.50
No. high-inference responses	.79	.67	.55
No. site-extended responses	.69	.61	.41
Completeness	.85	.71	.59
Writing quality	.81	.79	.91

"Intra-class correlations" were derived from these analyses for each observation category (Guilford, 1956; Williams, 1973). The classroom by observer-team interaction constituted the error variance term in the intra-class correlation computation, so that the coefficient represents the degree to which an item differentiates between classrooms, and does so in the same way for different observer teams $\left(r_{kk} = \frac{MS_{classrooms} - MS_{classrooms \times observers\ interaction}}{MS_{classrooms}}\right)$.

Including the cover sheet, there were 277 items in the observation form. Reliability coefficients of .60 or greater were obtained with 110 of these (40%). These were distributed among different sections of the form in the following way:

Cover sheet - 16 of 24 items (67%) were .60 or greater

General activities - 15 of 28 items (54%) were .60 or greater

Teacher categories - 22 of 87 items (25%) were .60 or greater
Student categories - 19 of 67 items (28%) were .60 or greater
Ratings - 38 of 71 items (54%) were .60 or greater

Reliability of the teacher class descriptions and the teacher ratings of students could not be assessed because there was only one observation for each class (or child) on each item, and there were no a priori scales for which to assess internal consistency.

Data Analyses

Following reliability assessment, data analysis proceeded through several stages: 1) differences between types of class on the various class descriptive measures were investigated with t tests; 2) individual scores within the various sets of measures of children's orientations, attitudes, achievements, and evaluations were factor analyzed, primarily to reduce the number and increase the stability of the measures; 3) general multiple regression procedures were used to assess the relationships between factors, including interactions with type of class.

These procedures will be described in detail in the following sections.

Results and Discussion

Differences Between "Traditional" and "Open" Classes

Each observer made one visit to each of the six classes in the study. A single score was obtained for each of the observation items. For the "sign" (behavioral) category section, this score was the sum of the tallies for the six 5-minute periods of observation. Mean scores were derived for each item within each type of class; these were based on eight sets of observations on each of three classes within each type. (There was one exception to this: an observation protocol for one of the open classes was lost; there were therefore only seven sets of observations for this class).

Tables 3, 4, and 5 present means of scores for those observation system items found to be significantly different between the two types of class. These tables also present the t test values (for determining the significance of the differences), the significance level of the t values, and the reliability coefficients obtained for the items. Table 3 contains the observation form cover sheet items, Table 4 contains the "sign system" items, and Table 5 contains the global ratings.

The cover sheet items describe the physical environment of the classroom. Classes designated "open" were more likely than those designated "traditional" to have multiple grades in the class, to be in an open area, and to have carpets; children were less likely to have specific, assigned spots in the open classes. The open classes also had more interest centers, more pictures, plants, animals, etc., more adults present, and more visible and accessible material and equipment than did the traditional classes. (Some of the other mean differences, although statistically significant, are actually rather small--such as "children at tables"

TABLE 3

Observation Form Cover Sheet Items Showing Significant Differences Between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean Score Assigned			
	Open $\bar{X}$	Traditional $\bar{X}$	t	R_{kk}
General classroom descriptions				
Grades in class (1=1, 2=more than 1)	1.96	1.25	6.81^{***}	.95
Arrangement (1=single schoolroom, 2=combin., 3=open area)	1.73	1.00	4.34^{***}	.86
Children at tables (1=yes, 2=no)	1.34	1.63	2.30^{*}	.66
Tables/desks in rows(1=yes, 2=no)	2.00	1.75	2.24^{*}	.54
Number of interest centers	7.87	2.63	6.38^{***}	.88
Child has assigned spot (1=yes, 2=uncertain, 3=no)	2.39	1.33	5.42^{***}	.90
Equipment visible and accessible (1=little, 3=much)	2.53	1.83	3.14^{**}	.87
Material visible and accessible (1=little, 3=much)	2.96	1.83	6.80^{***}	.92
Number of adults present	2.02	1.21	3.14^{**}	.76
Carpet (1=yes, 2=no)	1.35	2.00	6.09^{***}	1.00
Signs and pictures on walls (1=few, 4=very many)	3.74	2.54	5.08^{***}	.93
Plants in room (1=none, 3=some)	2.35	1.25	5.81^{***}	.86
Animals in room (1=none, 3=some)	2.05	1.33	3.39^{**}	.63
Other things from environment (1=none, 3=some)	2.13	1.08	5.32^{***}	.95

* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 4

Observation Form Items Showing Significant Differences Between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean no. of periods in which activity occurred (0-6 range)			
	Open $\overline{X}$	Traditional $\overline{X}$	t	R_{kk}
General Organization, Activities				
Language arts, English	3.15	1.38	3.00**	.68
Spelling	2.11	.83	2.19*	.79
Mathematics	2.73	.79	3.42**	.86
Social Studies	1.62	.29	2.77**	.59
Reading	4.10	2.08	4.66***	.61
Structured writing	3.22	1.63	2.54*	.78
Creative writing	.53	.00	2.84**	.62
Working with problems	2.22	.50	3.24**	.85
All same individual activity	.48	2.75	4.38***	.93
All same group activity	.21	1.33	3.18**	.25
2 or more diff. simultaneous individual activities	3.51	.79	4.96***	.71
Simultaneous individual and group activities	3.57	1.71	2.86**	.82
Disruptive activity shift	.08	.71	3.32**	.50
Teacher activities				
Talking with total class	1.08	3.71	5.78***	.84
Talking with 1 student	5.29	4.17	2.75**	.70
Lecturing	.17	.75	2.97**	.73
Disciplining	1.08	2.63	4.54***	.77
Talks about Ss' work	2.29	1.38	2.21*	.21
Starts whole class on task	.73	1.88	3.30**	.42
Starts group on task	1.62	.75	2.35*	.33
Starts individual on task	2.64	.96	4.49***	.89
Shows hostility, frowns	.72	1.92	2.95**	.74

TABLE 4 (Continued)

Observation Form Items Showing Significant Differences Between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean no. of periods in which activity occurred (0-6 range)			
	Open $\overline{X}$	Traditional $\overline{X}$	t	R_{kk}
Tries to stop disruptive activity	.50	1.71	4.44***	.81
Asks questions of class	.33	1.63	3.67**	.48
Asks question of individual	3.88	2.46	2.95**	.84
Gives requested help	2.84	1.75	2.23*	.31
Rejects student idea	.04	.46	2.33*	.36
Calls on S after offer	.83	2.08	2.51*	.63
Warns	.38	1.04	2.37*	.71
Scolds	.38	1.17	2.47*	.54
Shows annoyance	.73	1.67	2.68*	.61
Criticizes, disapproves	.90	2.08	3.53**	.62
Suggests, guides	2.69	1.33	2.71**	.66
Refuses permission	.08	.46	2.30*	.25
Speech inaudible (to observer)	.58	.13	2.20*	.43
Student activities				
5 or more Ss fidgeting	1.72	3.50	3.03**	.72
S starts task on own	2.30	.54	4.63***	.94
S works on floor	3.69	.79	6.20***	.84
S talks about nonclass topic	3.48	2.38	2.23*	.71
S-T discussion of work	3.51	2.08	3.14**	.86
S-S academic discussion	3.25	1.42	4.42***	.76
S helps S	2.49	.63	5.22***	.84
S competes with S	.27	1.13	2.36*	.29
Ss work together	4.10	1.67	5.61***	.81
S presents work to class or group	.13	.58	2.09*	.51
S shifts own activity	2.51	.54	3.86***	.92

TABLE 4 (Continued)

Observation Form Items Showing Significant Differences Between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean no. of periods in which activity occurred (0-6 range)			
	Open $\overline{X}$	Traditional $\overline{X}$	t	R_{kk}
S gets or replaces material or equipment on own	4.09	1.58	4.64^{***}	.91
Ss form own work group	1.03	.21	2.31^{*}	.68
S offers response (raises hand)	.34	1.63	3.99^{***}	.71
Ss share, cooperate	3.70	1.83	3.63^{**}	.80
½ class or more working intently, with T attention	1.30	3.25	3.38^{**}	.55
½ class or more working intently with no T attention	4.83	2.00	5.96^{***}	.90
5 or more Ss attending to T	1.68	3.75	3.76^{***}	.52
2 or more Ss not attending to T (when expected)	1.38	3.08	3.31^{**}	.57

* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 5

Observation Form Ratings Showing Significant Differences Between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean rating (1-6 range)			
	Open $\bar{X}$	Traditional $\bar{X}$	t	R_{kk}
Student activity ratings				
S work self-sustaining (6) - S work T-dependent (1)[a]	4.14	1.92	6.26***	.88
Mostly convergent tasks (1) - Mostly divergent tasks (6)	3.96	2.04	4.19***	.85
Ss move much (6) - little movement (1)[a]	4.32	2.62	5.58***	.82
Ss have no voice in determing activities (1)- tot. resp. for (6)	4.18	2.58	4.55***	.78
Ss always follow own interests (6)- follow prescribed plan (1)[a]	3.27	1.21	7.07***	.89
Ss talk freely (6) - Ss talk at T direction (1)[a]	4.58	3.42	3.83***	.83
Single common activities (1) - Varied simultaneous activities (6)	5.39	2.58	7.38***	.94
Ss show much initiative (6) - Show no initiative (1)[a]	3.51	2.54	2.81**	.58
Ss compliant (1) - independent (6)	4.69	2.92	5.90***	.84
Ss always work at own pace (6) - common pace aimed at (1)[a]	4.01	2.08	5.47***	.89
Ss active (6) - Ss passive (1)[a]	4.15	3.37	2.37*	.23
Ss have no choices (1) - Constantly choosing (6)	4.76	2.58	6.69***	.90
Ss uninvolved in class activities (1) - highly involved (6)	4.58	3.96	2.05*	.00
Ss work with no T intervention (6)- Close T supervision (1)[a]	3.67	2.08	5.46***	.84
Ss set no goals (1) - Ss set all goals (6)	4.06	2.55	4.29***	.77
Classroom atmosphere ratings				
Creative (6) - uncreative (1)[a]	3.76	2.62	3.07**	.77
Tense (1) - relaxed (6)	5.36	4.67	2.39*	.32

TABLE 5 (Continued)

Observation Form Ratings Showing Significant Differences between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean rating (1-6 range)			
	Open $\overline{X}$	Traditional $\overline{X}$	t	R_{kk}
Diverse materials in use (6) - Ss all use same (1)[a]	4.41	1.63	7.26***	.95
Class accepting (6) - rejecting (1)[a]	3.94	3.08	2.54*	.46
Task-oriented (1) - person oriented (6)	3.70	2.33	4.09***	.68
Cooperative (6) - competitive (1)[a]	3.96	2.96	3.59**	.44
Business-like (1) - informal (6)	5.19	4.00	3.82***	.74
Friendly (6) - hostile (1)[a]	4.22	3.62	2.31*	.62
Serious (1) - Jovial (6)	4.58	3.58	2.99**	.54
Without rules (6) - many rules (1)[a]	3.37	2.00	5.83***	.81
Full of stimuli (6) - Devoid of stimuli (1)[a]	4.25	2.46	4.51***	.80
Repetitive (1) Extremely varied (6)	4.68	3.54	3.04**	.43
Rigid re procedures (1) - Flexible re procedures (6)	4.81	3.41	4.73***	.84
Random sequence of events (6) - Orderly sequence of events (1)[a]	2.79	1.04	4.90***	.74
Activity spontaneous (6) - Activity ordered, planned (1)[a]	2.90	1.29	4.76***	.78
Oriented to novel, unusual (6) - Not so oriented (1)[a]	3.49	1.83	4.45***	.70
Teacher activity ratings				
Critical (1) - praising (6)	4.81	4.00	2.55*	.77
Frequently used ridicule, sarcasm (1) - Never used (6)	5.71	5.04	2.19*	.83
Consults with individuals or groups (6) - never consults (1)[a]	4.66	3.58	3.94***	.74
Encouraged 'exploration' (6) - Discouraged 'exploration' (1)[a]	3.73	3.04	2.23*	.47
Not permissive (1) - Very permissive (6)	4.63	3.42	4.29***	.64

TABLE 5 (Continued)

Observation Form Ratings Showing Significant Differences between Traditional and Open Classes (with Reliability Coefficients for Items)

Item	Mean rating (1-6 range)			
	Open $\bar{X}$	Traditional $\bar{X}$	t	R_{kk}
Mostly lectures (1) - never lectures (6)	5.11	3.54	5.78***	.91
T always directs class activities (1) - Ss always direct (6)	3.49	1.92	4.53***	.72
Constantly gives individual attention (6) - Never gives (1)[a]	4.35	3.21	4.31***	.76
Promotes S independence, autonomy (6) - Discourages ind., aut. (1)[a]	3.87	2.67	3.53**	.74
Discourages open S expressiveness (1) - Encourages open S expr. (6)	4.97	3.92	2.83**	.65

* $p < .05$
** $p < .01$
*** $p < .001$

a. Scale values on these items have been reversed to clarify presentation in this table.

and "tables/desks in rows"--and therefore do not seem to represent as clearly real differences between the types of class).

The mean scores shown in Table 4 refer to the average number of 5-minute observation periods during which a particular activity was observed. Since there were six observation periods in each observation session, the maximum possible score is six in each case, the minimum, zero.

Although the first eight items in this table, referring to specific academic subjects and activities, all show higher scores in the open classes, this should not be taken to mean that more total time is devoted to these in open classes. It is more likely to reflect the fact, as shown in the next four items, that children in traditional classes were much more likely to be all engaged in the same activity at any one time, while children in open classes were more likely to be occupied with varied simultaneous activities. More specific topics were checked in the open class protocols because different children were working on different things during the same periods. Activity shifts also tended to be judged somewhat more "disruptive" in the traditional classes (but it should be noted that the mean scores were quite low for both types of class).

In the next section of the table, concerned with teacher activities, it can be seen that teachers in open classes did more talking about students' work, more frequently started individuals and groups on tasks, asked more questions of individuals, gave more requested help, and did more suggesting and guiding; while teachers in traditional classes spent more time talking with the total class, lecturing, disciplining, more frequently started the whole class on a task, showed hostility, tried to stop disruptive activity, asked questions of the whole class, called on students, criticized, and showed annoyance. The higher score for "speech inaudible" in open classes was due to the fact that teachers in these classes spent more time speaking with individual children or small groups; if this occurred when other activities were going on, or in parts of the classroom distant from the observer, the teacher's speech was difficult or impossible to hear.

Students in the open classes were more likely to initiate their own tasks, work on the floor, discuss their work with the teacher or each other, help each other and work together, shift their own activities, get or replace their own material or equipment, form their own work groups, cooperate, and work without teacher attention. Students in the traditional classes more frequently fidgeted, competed with each other, offered responses, worked intently with teacher attention, and were more likely to be in a situation in which attention to the teacher was expected (and thus were higher than students in open classes both on "attending" and "not attending" when such attention was expected).

The global ratings, shown in Table 5, manifest differences consistent with those shown with the "sign" system categories. The major differentiating qualities in the "student activity" portion of the table involve student involvement, freedom to move around and talk, self-direction, decision-making, and initiative, all of which were rated higher in the open classes. The classroom atmosphere was rated as being more cooperative, informal, friendly, varied, flexible and spontaneous in open classes. There were relatively fewer significant and sizeable differences between teachers in the two types of classes. The open class teachers were rated as more likely to take a "consultation" role, more permissive, less likely to lecture, or direct all class activities, more likely to promote students' autonomy and expressiveness, and more likely to give individual attention.

A smaller number of items from the teachers' class description questionnaires significantly differentiated the types of class. These are shown in Table 6. The differences which do appear here, however, are generally in agreement with those obtained with the observation system, and show the open classes to be less scheduled and to have more independent study time, while the children in open classes are freer

TABLE 6

Teacher Class Description Items Showing Significant Differences between Traditional and Open Classes

Item	Mean score (1-5 range)		
	Open $\bar{X}$	Traditional $\bar{X}$	t
1) Time scheduling. (all activities prearranged=1, nothing prearranged=5)	2.75	1.33	2.24*
11) Study places. (Each child works at own desk or table=1, work in many places=5)	4.50	2.33	2.67*
14) Class as whole. (T attention directed to, most of time=1, almost never=5)	4.25	2.67	3.90**
19) T acts as Discussion-leader, T-selected topics. (most of time=5, almost never=1)[a]	1.25	3.00	2.35*
23) Independent study time available. (none=1, as need arises=5)	4.50	3.33	2.65*
36) Talking. Ss talk freely=5, only when called on=1)[a]	3.50	2.00	4.39**
42) Children get own materials. (freely at any time=5, only with permission 1)[a]	3.25	1.33	2.41*

*p $<.05$

**p $<.01$

a. Scale values on these items have been reversed to clarify presentation in this table.

to talk and get their own materials, and more likely to work at single assigned spots; and the teachers in open classes more frequently act as discussion leaders and less frequently direct their attention to the class as a whole.

These various items which are thus significantly differentiated between the open and traditional classes in this study seem on the whole quite consistent with the various discussions of the characteristics of open education in the literature. The classes are different on such dimensions as student freedom of choice and movement, autonomy, opportunity to make choices and to influence decisions about class activities, participation in group activities, cooperation, and involvement. The open classes were more varied, were more stocked with stimuli of various kinds, and were more likely to have multiple activities going on simultaneously. Teachers in open classes played more of a consulting, discussion-leading role, and spent less time lecturing and making formal presentations. Open classroom teachers also spent less time in disciplinary activities, possibly because of a difference in definitions of "unacceptable" behavior.[2]

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[2] To investigate this possibility of a difference in definition, the attempt was made to determine whether childrens' disruptive behavior was actually different between the two types of class. Mean scores for traditional and open classes on various observation system items which might be considered to reflect child misbehavior (directly or indirectly) were examined. These are shown in the following table:

TABLE 7
Mean Child 'Misbehavior' Items in Traditional and Open Classes

Items	Mean No. of periods in which activity occurred		
	Open $\overline{X}$	Traditional $\overline{X}$	R_{kk}
Socializing	3.10	3.21	.00
Running	.61	.71	.53
Yelling	.59	1.08	.07
Horseplay	2.24	2.25	.43
Daydreaming	2.28	2.67	.23
Tattling	.36	.21	.00
Arguing	.80	1.00	.30
Ignores teacher request or demand	.25	.67	.59
Resists, disobeys teacher	.21	.33	.22
Commands, threatens	.30	.38	.04

Footnote continues on page 37

Thus the classes selected for this study seem to have been clearly and significantly differentiated on dimensions central to most operational definitions of "open" education. However, it should be pointed out that most of the classes were not at the extremes on most of these items. Perhaps it would be most accurate to consider them as representing fairly clear "tendencies toward" openness or traditionalness. In any case, the reader can get the clearest idea of the actual characteristics of and differences between the two sets of classes in this study by examining the mean scores and differences shown in Tables 3, 4, 5, and 6.

Factor Analyses

In order to reduce the large number of measures of children's characteristics to a workable number, and to identify the basic elements involved in these various data-sets, factor analysis was applied to each of them, including the 3rd grade achievement test and cognitive ability measures, the orientation and motive scale scores, the 4th grade achievement and cognitive skill measures, the social attitude scale scores, the self- and class-evaluation items, and the teacher ratings of

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None of these was a statistically significant difference. The only differences which approached significance were for "yelling" (p=.18) and "ignores teacher request or demand" (p=.08). However, these and the other categories (with the exception of "tattling") do show slightly greater frequencies for the traditional classes. In addition, there was a small but significant difference, shown in Table 4, in "disruptive activity shifts", the traditional classes being more disruptive. Thus there does seem to have been a small difference in child behavior to which the teachers were, at least in part, responding. But since the teacher discipline categories were significantly different between the traditional and open classes, while the child 'misbehavior' categories generally were not, it seems reasonable to conclude that a difference in the definitions and lattitudes of socially acceptable behavior between the two types of class (as well, perhaps, as a difference in what is considered an appropriate teacher response to such behavior) was a more important determinant of these teacher behaviors. (That the teachers in traditional classes perceived their students' misbehavior as greater than did teachers in open classes is shown by a correlation of -.33 (p <.01) between a teacher rating factor of "undisciplined activity" and type of class--where a negative correlation indicates a higher level in traditional classes--shown in Table 19, Appendix A. At the same time, however, the children's own rated perception of disruptiveness in their classes was not significantly different between traditional and open classes (r=.05), also shown in Table 19).

students.

Factor analysis is a statistical procedure for grouping items or scale scores based on their inter-relationships, (i.e. intercorrelations) allowing one to identify a smaller number of underlying dimensions, or "factors". Each factor is defined through an examination of the "loadings" of all items on it. (A "loading" is essentially the correlation of the item with the overall factor.) The items with the highest loadings are the most important in determining the meaning of the factor. All of the factors in these analyses were "rotated" to "orthogonal simple structure"; the rotated factors resulting from this procedure tend to be uncorrelated with each other and to be maximally simple and meaningful. To describe these analyses more technically, squared multiple correlations were used as diagonal elements in all but two of the factor analyses. For these two (involving the achievement test and creativity items, and the teacher ratings of students) the multiple correlations could not be computed, so the maximum off-diagonal correlations were used as diagonals. Varimax rotations were applied to factors with eigenvalues greater than one.

The tables that follow (8 through 13) present the item loadings, communalities (h^2; the combined contribution of an item to all the factors within one factor analysis), and the percentage of the total variance from all the items or scores accounted for by each factor. Interpretations of the factors within each factor analysis follow:

Third Grade Achievement and Cognitive Ability Test Factor.

The various subscores included in this factor analysis (shown in Table 8) cluster together into one large and coherent factor, with no low loadings. There is no clear differentiation, in the distribution of loadings, between the achievement and the ability measures, or between any of the skill areas sampled. We will refer to this factor, in the remainder of this report, as "prior achievement",

TABLE 8

Prior (3rd Grade) Achievement Test and Cognitive Ability Factor

Subscores	Loadings	h^2
Arithmetic concepts (Iowa)	.92	.85
Verbal ability (Cog. Abils. Test)	.89	.79
Reference materials (Iowa)	.86	.73
Quantitative ability (Cog. Abils. Test)	.85	.72
Arithmetic problems (Iowa)	.85	.72
Map reading (Iowa)	.83	.69
Vocabulary (Iowa)	.82	.68
Reading (Iowa)	.82	.67
Graphs and Tables (Iowa)	.81	.65
Language Usage (Iowa)	.77	.60
Punctuation (Iowa)	.75	.56
Nonverbal cognitive ability (Cog. Abils. Test)	.74	.55
Spelling (Iowa)	.74	.55
Capitalization (Iowa)	.65	.42
Percent variance	67.8	

bearing in mind that cognitive abilities are substantial contributors to the factor.

Student Preference, Motive, and Orientation Factors

The eleven student preference, motive and orientation scales produced four factors, shown in Table 9. Following are the names assigned to the factors, and some discussion of the rationale for the assignment of each name:

Factor I - Compliant, conforming orientation. There are two scales with substantial loadings on this factor: "bureaucratic orientation" and "social desirability". Since the first involves reliance on authority, being guided by institutional rules, and conformity, and the second involves the description of oneself as following socially accepted and valued norms and standards, the essence of the common underlying dimension seems accurately conveyed by "compliance" and "conformity". The moderate negative loadings for "intrinsic motivation" (which involves participating in an activity for one's own pleasure, rather than for external rewards) and "personal expression orientation" (a preference for "open-ended" situations) are also consistent with the factor's interpretation, seeming logically opposed to social conformity and a concern with following rules.

Factor II - Personal control orientation. Three items had substantial positive loadings on this factor: "responsibility for positive outcomes", "responsibility for negative outcomes", and "locus of instigation". It refers, therefore, to the child's belief that he is generally responsible for initiating his own activities and behavior, and is also generally responsible for the outcomes of his behavior, including both positive and negative outcomes. "Personal control orientation" thus refers to control over both aspects of behavior - instigation and outcome.

Factor III - Autonomous achievement orientation. Although "generality of strong task preferences" is the only scale with a high loading on this factor, three other achievement-related scales have their highest loadings (although only

TABLE 9

Student Preference, Motive, and Orientation Factors

Scales	Loadings				h^2
	I	II	III	IV	
Bureaucratic orientation (SEPS)	.81	.20	-.11	-.13	.73
Social desirability	.61	-.12	-.03	-.09	.40
Responsibility for positive outcomes (I+)	-.06	.60	.19	-.10	.41
Responsibility for negative outcomes (I-)	.06	.58	.07	-.09	.35
Locus of instigation	-.10	.51	.28	.40	.51
Generality of strong task preferences	.05	.15	.77	.06	.61
Achievement motivation	-.14	.18	.37	-.26	.26
Intrinsic motivation	-.33	.13	.35	.20	.29
Fear of failure	.22	-.22	-.28	.14	.19
Preference for open classes	-.05	-.14	.01	.65	.44
Personal expression (vs. structured role) orientation	-.33	.01	-.08	.56	.43
Percent variance	22.3	18.3	11.7	9.3	

moderate) on this factor, "achievement motivation", "intrinsic motivation", and "fear of failure". The achievement orientation represented by this factor is called "autonomous" primarily because of the contribution of "intrinsic motivation" which implies engaging in achievement activities for one's own goals and on one's own initiative (the small but positive loading for "locus of instigation" is also consistent with this). The other items indicate that the quality described by this factor involves a broad variety of interests and an orientation toward moderate levels of risk in achievement situations.

Factor IV - Preference for open situations. The two scales with the highest loadings on this factor are "preference for open classes" and "personal expression orientation". Because "personal expression orientation" refers to a variety of kinds of situations in which one is free to explore and develop one's own approach (as opposed to pre-defined and highly structured situations) and thus is more general than a preference for a particular kind of class, the factor is called "preference for open situations". The two scales are quite similar in that they have a substantial area of overlap; the class preference scale has items which refer to several aspects of classroom 'openness', some of which involve the opportunity to initiate and direct one's own activities, to express oneself freely; the personal expression orientation scale refers to a variety of situations, including classrooms. The moderate loading for "locus of instigation" is also consistent, in that in an open situation one is relatively free to initiate one's own activities.

Fourth Grade Achievement Test, Inquiry, and Creativity Factors

A number of items which seemed to reflect cognitive skills and knowledge were included in this factor analysis. Among these were the California Achievement Test subscores (from the test given at the end of the 4th grade), the inquiry item response codes (including the coders' assessments of writing quality), and the creativity response codes. The factor loadings for these subscores and coded items are shown in Table 10. The factors were given the following names:

TABLE 10

4th Grade Achievement Test, Inquiry, and Creativity Factors

Subtest or item	Loadings			
	I	II	III	h^2
Math computation (CAT)	.82	.12	.04	.68
Punctuation (CAT)	.76	.33	.26	.74
Capitalization (CAT)	.74	.19	.22	.64
Reading comprehension (CAT)	.74	.19	.11	.60
Math concepts (CAT)	.72	.12	.15	.56
Math problems (CAT)	.69	.24	.06	.53
Spelling (CAT)	.68	.17	.29	.57
Vocabulary (CAT)	.68	.24	.10	.53
Language usage and structure (CAT)	.59	.24	.10	.42
Math fractions (CAT)	.52	.02	-.03	.28
Writing quality	.50	.47	.17	.50
Inquiry-completeness of responses	.29	.91	.16	.93
Inquiry-no. of informative responses	.22	.91	.28	.95
Inquiry - no. of indirect responses	.16	.88	.32	.90
Inquiry - no. of high-inference responses	.21	.84	.21	.79
Inquiry - no. site-extended responses	.23	.60	.15	.44
Uses - % rare responses	.14	.10	.76	.60
Uses - number of responses	.28	.28	.68	.62
Patterns - number of responses	.16	.32	.47	.35
Patterns - % rare responses	.00	.13	.38	.16
Percent variance	43.9	13.3	7.2	

Factor I - Achievement test performance. All of the achievement test subscores had high loadings on this factor and no other. In addition, the measure of "writing quality" has its highest loading on this factor (although it loads almost equally highly on the second factor). There is little ambiguity about the interpretation of this factor.

Factor II - Inquiry skill. The interpretation of this factor is also quite clear. The loadings of all the inquiry coded items are quite high; "writing quality" (which was rated from the same responses) is moderate. According to this analysis, skill at developing a workable problem-solving strategy is unrelated to either standard academic achievement or creativity.

Factor III - Creativity. All of the coded items from the "uses" and the "patterns" measures had moderate-to-high loadings on this factor. Although the fact that the "uses" loadings were higher than the "patterns" loadings might lead one to consider this primarily a verbal creativity factor, it seems more parsimonious to consider it a general creativity factor inasmuch as the patterns items have no higher loadings on any other factor.

Social Attitude Factors

The eleven attitude and value scales were included in a single factor analysis, resulting in five factors, shown in Table 11. These were given the following names:

Factor I - Self-confidence. Three scales have their highest loadings on this factor--"tolerance for differences", "assertion responsibility", and "self-esteem". The combination of thinking well of oneself (self-esteem), and feeling sufficiently sure of oneself to believe in stating one's opinions even if unpopular (assertion) primarily suggested the quality of "self-confidence"; on the assumption that acceptance of oneself relates to acceptance of others, the high loading of "tolerance for differences" is also consistent with this interpretation.

TABLE 11

Social Attitude Factors

Scales	Loadings					h^2
	I	II	III	IV	V	
Tolerance for differences (heterogeneity)	.67	-.01	.08	.12	.12	.48
Assertion responsibility	.58	.08	-.06	.03	-.16	.37
Self-esteem	.51	.17	-.01	-.17	-.01	.31
Equality of representation	.07	.85	-.05	.06	.07	.73
Equality of participation	.38	.45	.07	-.24	-.17	.44
Willingness to compromise	.06	.23	.11	.08	.11	.09
Concern for others	-.16	.13	.85	.02	.08	.77
Value on group activities	.07	-.05	.38	.01	-.20	.19
Cooperation (vs. competition)	.23	.10	.25	-.19	.10	.17
Value on decision-making autonomy	.01	.11	.01	.82	-.01	.68
Value on task self-direction	-.03	.08	-.05	-.02	.65	.43
Percent variance	19.5	12.9	12.1	10.9	9.5	

Factor II - Democratic attitudes. Three of the original four "democratic attitude" scales have their highest loadings on this factor (although the loading for one of them, "willingness to compromise" is not very high). "Equality of representation" is by far the strongest contributor to this factor and is perhaps the closest of these scales to the essence of democracy. "Equality of participation" is moderate and consistent. The democratic attitude subscale which does not load on this factor, "assertion responsibility" does bear a logical relationship to Factor I, as has been pointed out, and represents a fairly sophisticated aspect of the notion of democracy, one which is perhaps not yet integrated with other aspects of democracy for children of this age. (In a prior developmental study--Solomon et al, 1972--evidence was found that a value on compromise developed later than other democratic values among urban elementary school children.)

Factor III - Concern for others. Although three scales load highest on this factor, one of them, "concern for others", is so much stronger than the others that the factor was given the same name. The other two scales, "value on group activities" and "cooperation" seem consistent in that both involve working with and helping others.

Factor IV - Decision-making autonomy. This factor and Factor V are each one-scale factors. Although the possibility of rotating fewer factors was considered, each of them seemed of sufficient theoretical interest to keep them separate. The title assigned to this factor directly reflects the single high-loading scale, "value on decision-making autonomy".

Factor V - Value on self-direction. This factor also solely represents a single high-loading scale, "value on task self-direction".

Students' Self- and Class-Evaluation Factors

Eight separate items, asking for children's evaluations of their learning, enjoyment of school, and perceptions of the class social atmosphere, were included in this factor analysis, the results of which are shown in Table 12.

Factor I - Enjoyment of class. The two highest loading items on this factor were the children's ratings of school as having been "fun" and "interesting" during that year. Another item, referring to the number of social isolates in the class, had its highest loading (a weak negative one) on this factor, while the child's rating of the amount learned during the year had a moderate positive loading. Apparently, perceived social integration and learning each contributed slightly to children's enjoyment of their classes.

Factor II - Social involvement (friends). The two high-loading items on this factor refer to the child's friendly involvement with other children in the class. The child's assessment of the amount learned during the year and of the frequency of children's helping one another in the class also have moderate, positive loadings.

Factor III - Perceived disruptiveness in class. This factor has only one high loading item, "How often do kids in this class get mad at each other or fight?", but was kept as a separate factor because it seemed potentially interesting to investigate by itself. A low-moderate negative loading for a rating of children's helping one another also occurs and is consistent with the factor label.

Teachers' Ratings-of-Students Factors

Factor analysis of the 30 teacher student-rating items resulted in five factors, shown in Table 13. Interpretations of the factors follow:

Factor I - Autonomous intellectual orientation. The nine items with high loadings on this factor form a coherent group. The orientation is called "intellectual" because of the presence of such ratings as "reflective, thinks", "curious about many things", "skilled at problem solving", and "strong interests in many areas". The two creativity ratings with high loadings ("creative verbally" and "creative with materials") are not explicitly represented in the factor title,

TABLE 12

Students' Self- and Class-Evaluation Factors

Items	Loadings			h^2
	I	II	III	
How much fun have you had in school this year?	.80	.29	-.03	.72
How interesting have you found school this year?	.73	.29	.03	.62
How many kids do you think don't have many friends in this class?	-.25	.01	.05	.06
How many of the other kids do you think would like to stay close friends with you?	.20	.81	-.11	.71
How many kids in this class would you like to stay close friends with?	.07	.71	-.04	.52
How much do you think you have learned in school this year?	.33	.35	.13	.25
How often do kids in this class help each other?	.14	.32	-.28	.20
How often do kids in this class get mad at each other or fight?	-.01	-.03	.81	.66
Percent variance	34.4	15.7	13.7	

TABLE 13

Teachers' Student-Rating Factors

Item	Loadings					
	I	II	III	IV	V	h^2
Creative verbally	.81	.14	.11	.13	-.11	.72
Curious about many things	.79	.13	.05	.20	.16	.72
Sets problems for self	.75	.09	.30	.27	-.03	.74
Reflective, thinks	.75	.14	.37	.14	-.06	.74
Skilled at problem-solving	.72	.12	.40	.18	.01	.73
Strong interests in many areas	.71	.08	.13	.28	-.08	.61
Gives opinion, even if unpop.	.71	-.28	-.06	.22	-.03	.64
Creative with materials	.61	.18	.08	.09	.18	.44
Likes to initiate own tasks	.57	.07	.27	.35	-.38	.67
Respects others' opinions	.16	.85	.12	.10	.27	.85
Respects others' rights	-.01	.80	.26	.14	-.18	.77
Tolerant of differences	.21	.80	.08	.17	.02	.73
Concerned for welfare of others	.22	.80	.11	.20	-.17	.77
Willing to compromise	.11	.79	.08	-.01	.07	.65
Impulsive, blurts out	.19	-.69	-.21	.10	.15	.59
Cooperative, helpful	.15	.65	.37	.28	-.18	.70
Undisciplined	-.06	-.59	-.35	-.25	.49	.77
Works well without rewards	.10	.18	.81	.18	-.07	.74
Needs direction, structure	-.24	-.20	-.80	-.13	.12	.77
Perseveres with tasks	.30	.34	.64	.25	-.06	.69
Strives to achieve	.23	.24	.59	.53	-.05	.75
Avoids possible failure	-.28	-.28	-.48	-.10	-.03	.40

TABLE 13 (continued)

Teachers' Student-Rating Factors

Item	Loadings					h^2
	I	II	III	IV	V	
Much benefit from class	.26	.28	.22	.67	-.14	.66
Enjoys class	.37	.36	.24	.64	-.25	.79
Socially involved, accepted	.24	.13	.10	.63	-.02	.48
Competitive	.32	-.20	.32	.55	.30	.63
Eager to learn	.49	.33	.36	.52	.05	.75
Good self-image	.41	.02	.45	.51	.15	.65
Involved in class activities	.45	.28	.44	.51	-.03	.74
Physically active	.20	-.31	-.37	.44	.38	.62
Percent variance	42.1	15.8	6.8	5.2	3.7	

but seem consistent with both the "intellectual" and the "autonomous" aspects of this factor (since a creative approach to a problem is one which tends to be individual, unusual, and functionally adaptive). The items more directly leading to the inference of "autonomy" were "sets problems for self", "likes to initiate own tasks", and "gives opinion even if unpopular". Although the last one of these was included in the scale as a parallel to the "democratic attitude" items, in this context it seems quite consistent with the notion of autonomy (which can imply confidence in one's own opinions.)

Factor II - Democratic, cooperative behavior (socially mature). This factor includes a number of items indicating social involvement, helpfulness, and respect and concern for others ("respects others' opinions", "respects others' rights", "tolerant of differences", "concerned for welfare of others", "willing to compromise", "cooperative, helpful"), as well as two which imply self-control (negative loadings for "undisciplined" and "impulsive, blurts out"). "Social maturity" is inferred from this combination of internal and external orientations.

Factor III - Perseverant achievement behavior. The designation of this factor derives primarily from two items, "perseveres with tasks" and "strives to achieve." Teachers apparently see children with these characteristics as also working well without externally-provided rewards or structure and without needing a clear certainty of success. Although this factor and Factor I are both clearly achievement-related, they seem to organize different aspects of achievement. Factor III involves hard work and perseverance, striving behavior, while Factor I seems more to represent achievement-related interests, curiosity, and the like. Although some children will have high scores on both of these factors, the fact that the two factors are uncorrelated means that there are also children who may be high on one and low on the other. In other words, there are children who work hard in school without having much interest in the work; there are others with many strong interests who may not work hard in school, particularly on tasks which they don't find interesting. If it can be assumed that the children who persevere in class are conforming to class norms and teacher expectations, these two factors bear comparison with the distinction between "achievement via independence" and "achievement via conformity" put forward by Gough (1953), and involved in the research of Domino (1971) cited earlier.

Factor IV - Involvement in class activities. The various items with high loadings on this factor convey a picture of energy, enthusiasm, and involvement. The items which most directly represent involvement ("socially involved", "involved in class activities", "enjoys class") seem to constitute a consistent nucleus, but the other items ("benefit from class", "competitive", "eager to learn", "good self image", "active") are consistent with it, and confirm the connotation of excitement and positive affect associated with "involvement".

Factor V - Undisciplined activity. Although no item had its highest loading on this factor, it was kept as a separate factor because the items which had relatively high loadings made an interesting and potentially useful combination. These were "undisciplined" and "physically active".. ("Likes to initiate own tasks" also has a moderate negative loading.) It is interesting that "physically active" appears associated with involvement and enthusiasm in Factor IV, with disruptiveness in Factor V, and with perseverance (negatively) in Factor III. It is possible that children whose energy and activity are not engaged by the class procedures are those who become disruptive and do not persevere. Presumably, if a child's needs are well "matched" by his classroom environment, he is more likely to be "involved" and to "persevere", and less likely to be "disruptive". In the following sections, this and similar aspects of the results will be examined.

Relationships with Outcome Measures

The factor analyses described in the preceding sections produced a total of 21 factors. Individual scores were derived for each child on each of these factors with the "complete estimation method" (Harman, 1960). Sixteen of these factors were considered to represent "outcome" measures, including the 4th grade Achievement Test, inquiry, and creativity factors, the five social attitude factors, the three self- and class-evaluation factors, and the five factors derived from teachers' ratings of students. The four preference/orientation factors represented individual characteristics of children and, as such, functioned as predictors or independent variables whose interaction with class-type was the focus of investigation. The intended function for the remaining factor, prior achievement and cognitive ability, was a dual one; in part it was to function as a "control" variable whose effect was to be partialled out of other relationships (so that the strength of these relationships beyond and independent of any effect of prior achievement could be determined), in addition it was also considered as a measure of another individual characteristic which might interact with the type of class to influence various outcome measures.

Three measures which did not derive from factor analyses were also included in the analyses of relationships with outcomes: The measure of the "breadwinner" parent's occupational level was included as a rough index of socio-economic status and functioned, with prior achievement, as both a "control" variable and an "individual characteristic" variable whose interactions with class could be investigated. In addition, the measure of "writing quality" was included as a separate dependent ("outcome") index. Even though it contributed moderately to two of the outcome factors, the stress that some writers on open education have placed on the development of writing skill made it seem worthwhile to investigate it as a separate measure. A third separate measure was derived by summing three of the teachers' student-rating indices--"physically active", "impulsive, blurts out", and "undisciplined". This measure, referred to as "impulsiveness/activity level", was intended as a rough approximation of "hyperactivity". There has been speculation that hyperactive children might be best served by classrooms with relatively low levels of stimulation. The "impulsiveness/activity level" measure was created in order to test this hypothesis. Because this cluster of rating items did not coalesce clearly in the factor analysis, it was necessary to create an index in this way in order to represent the characteristic. Since these rating items were also part of the teacher rating factor analysis, the "impulsiveness/activity" index (which is treated as an independent variable) was excluded from analyses in which any of the teacher rating factors were dependent variables. (The internal consistency reliability coefficient of this index was .50).

The analyses of effects on outcomes were performed with stepwise multiple regression, using the program contained in the Statistical Package for the Social Sciences (Nie, Bent, and Hull, 1970). The use of multiple regression as a general data-analytic tool, and an analogue to analysis of variance, has been discussed by Cohen (1968), Walberg (1971), and Kerlinger and Pedhazur (1973). The procedures used in the present research followed several of the suggestions of these authors. Multiple regression analysis allows for the investigation of the simultaneous effects of large numbers of independent variables on a single dependent variable. Among the statistics it produces are: 1) the multiple correlation--a measure of the combined effect of all the independent variables on the dependent variables, 2) the squared multiple correlation--which represents the proportion of the total variance accounted for by the set of independent variables, and 3) the standard partial regression coefficients - or "beta weights" - which show the relative influence of each of the independent variables on the dependent variables.

The "step-wise" procedure allows one to order the sequence with which independent variables are added to the regression equation, and to limit the independent variables to those which contribute more than a specified minimum to the prediction of the dependent variable. In the analyses to be described shortly, the independent variables were entered in four sets, in a predetermined order. Within each set, variables which exceeded a specified minimum (an F value of 1.0) were entered in order of their contributions, strongest first, weakest last. The order of entry is important in step-wise regression analysis, because earlier-entered variables tend to appear more influential; this is particularly true if two or more independent variables are correlated (i.e., share common variance)--the first one entered will account for its own plus the common variance, leaving relatively less to be accounted for by the later-entered variables. A conservative ordering procedure was used in the present study, entering the well-established variables earlier, the more hypothetical ones later. The first set entered into the regression analysis consisted of Prior Achievement and Socio-economic status. Giving this set priority is analogous to controlling the effect of these variables statistically, as in analysis of covariance (Cohen, 1968); later-entered variables' manifested effects are those which remain after the effects of earlier-entered variables are accounted for. The second set entered consisted of a single variable--"type of class" (or "T"). This was "effect coded" (Kerlinger and Pedhazur, 1973), with a value of 1 assigned to all children in open classes, and a value of -1 assigned to all children in traditional classes. The third set entered consisted of the measures of individual orientations and preferences (plus the index of "impulsiveness/activity level".) The fourth set was composed of variables representing interactions between type of class (a "categorical" measure) and each of the other independent variables (all "continuous" measures).

Cohen (1968) and others have described procedures for investigating interactions with multiple regression analysis. Multiple regression can handle only linear variables; but an interaction term can be made a linear variable by multiplying the two (or more) interacting variables and treating the product (interaction) as a new independent variable whose effect can be determined and compared with those of other variables. In the present analyses, the factor score (or standard score) of each continuous independent variable (including prior achievement and socioeconomic status) was multiplied by type of class; the products were entered into the regression analyses as a set of interaction terms.

In the following tables, the results of these regression analyses are presented. Each table includes one set of dependent variables and all independent variables (including "main effects" and "interactions"). The influence of the independent variable is represented by the "beta" (standard partial regression) coefficient and its statistical significance. The multiple correlation of all independent variables with each dependent variable, the significance of that multiple correlation, and the square of the multiple correlation are also shown. (All of these statistics are those obtained at the final step of the step-wise analysis). Each of these analyses was done separately for boys, girls, and the total sample. For every significant interaction, a graph is also presented which plots the regression line of the interacting continuous variable on the dependent variable, in traditional and open classes.

Interpretation of beta coefficients is somewhat similar to that of correlation coefficients in that a positive coefficient indicates a positive effect (i.e., an increase in one relates to an increase in the other variable), and a negative coefficient indicates a negative effect. Main effects of type of class on dependent variables should be interpreted as a higher score for children in open classes when the coefficient is positive, and a higher score for those in traditional classes when the coefficient is negative. Interpreting the interaction terms is a bit more complicated and requires the graphs for a full understanding. Generally, however, a positive interaction coefficient indicates a more positive effect between the continuous independent variable and the dependent variable in open than in traditional classes; while a negative interaction coefficient indicates a more positive effect in traditional than in open classes. The graphs will show whether the two regression lines intersect within the sampled ranges (i.e., whether the interaction is "ordinal" or "disordinal"), and will make it possible to compare the relative steepness of the two slopes.

Relationships with Fourth Grade Achievement Test, Inquiry, and Creativity Factor Scores, and Writing Quality

The results of the multiple regression analyses predicting each of these cognitive skill measures are presented in Table 14. The dependent (outcome) variables are presented across the top of the table; the independent (predictor) variables, down the side. "Main effects" are presented in the upper half of the table, and "interactions" and multiple correlations in the lower half. Each column of the table represents a single multiple regression equation. The same format will be followed for all tables presenting multiple correlation analyses.

Achievement Test Performance. Fourth grade achievement test performance is well-predicted by the set of independent variables, as indicated by the magnitude of the multiple correlation and the multiple R^2 (which represents the proportion of variance in the dependent variable accounted for by the total set of predictors). Of course, by far the largest contributor to this effect is the measure of prior achievement. Socioeconomic status (SES) also contributes fairly substantially for boys, independently of the contribution of prior achievement. But even after these prior status measures are accounted for, there are still several significant predictors for boys, and one for girls. The negative beta shown for type of class indicates that, controlling for prior achievement and SES, boys' achievement test performance was better in traditional than in open classes. The negative beta for atonomous achievement orientation indicates that boys low in this orientation

TABLE 14

Regression Coefficients (Betas) and Multiple Rs from Multiple Regression Analyses Predicting Achievement, Inquiry Skill, Creativity, and Writing Quality

Independent Variables	Dependent Variables											
	Achievement Test Performance			Inquiry Skill			Creativity			Writing Quality		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Prior achievement	.77***	.94***	.74***	.04	-.01	.11	.40*		.15	.55***	.27	.34***
Socio-economic status	.44***		.22**									
Type of class (T) (1=open, -1=trad)	-.46***		-.26***	.20			.01	.14	.16			
Compliant, conforming orientation	.16	.14	.12	-.20	-.22	-.17	-.15					
Personal control orientation		.09	.14*				-.21	.14		.14	.31	.19*
Autonomous achievement orientation	-.19*		-.12		.41*	.19	.28	.37*	.12	-.18		-.10
Preference for open situations		-.22*		-.44**		-.11				.01		
Impulsiveness/Activity level	.09		-.06			-.14			-.14			-.18
T X prior achievement	-.13	.15	-.10	-.16			.47**		.17			
T X SES	.26*		.12						-.16			
T X complaint orient.		.09		-.25		-.14		.26	.11			
T X control orientation							-.30					
T X autonomous ach. orientation	-.25**		-.11				.39*	-.18				
T X pref. for open sits.			.09		.25	-.14	.15			.29*		.21*
T X activity level			-.10				-.21		-.19	-.20		-.16
Multiple R	.86***	.91***	.85***	.50*	.54*	.39*	.57*	.59*	.42*	.63***	.43*	.59***
Multiple R^2	.74	.83	.73	.25	.29	.15	.33	.34	.18	.40	.19	.35

Note: boys N=56, girls N=36, total N=92; variables with F values of $<$1.0 not entered into regression equation.
*p $<$.05, **p $<$.01, ***p $<$.001

performed better on the achievement test than those scoring high. It is possible that the "autonomous" aspect of this factor is inconsistent with the obedient application necessary to develop the skills tapped by the achievement test. The positive betas of the compliant, conforming orientation, though nonsignificant, are consistent with the idea that achievement test performance is more associated with compliance than with autonomy. This may help to explain also why boys' test performance was better in traditional classes; these classes put more stress on compliance and on practicing the specific skills measured by the tests, and gave the children less opportunity to exercise autonomous approaches to achievement. The negative relationship between girls' preference for open situations and achievement test performance (i.e., the highest-achieving girls were those who did not state a preference for open situations) also seems to fit with the above comments, but it is puzzling to find it only for girls. The positive relationship shown between personal control orientation and achievement test performance for the total sample is consistent with other research findings of positive relationships between locus of control and school achievement (see review by Solomon and Oberlander, 1974).

Two significant interactions were also obtained for boys, one showing a joint effect of type of class and socioeconomic status, the other a joint effect of type of class and autonomous achievement orientation. The shapes of these interactions can be seen in Figs. 1 and 2.

These and subsequent interaction figures represent the regression line for traditional classes by a solid line, and the regression line for open classes by a dashed line. They also present the independent continuous variable on the horizontal axis and the dependent (outcome) variable on the vertical axis. The midpoint shown on each axis represents the obtained mean on the variable; the other six points represent three standard deviations on each side of the mean. With the exception of the three non-factor indices (socioeconomic status, writing quality, and

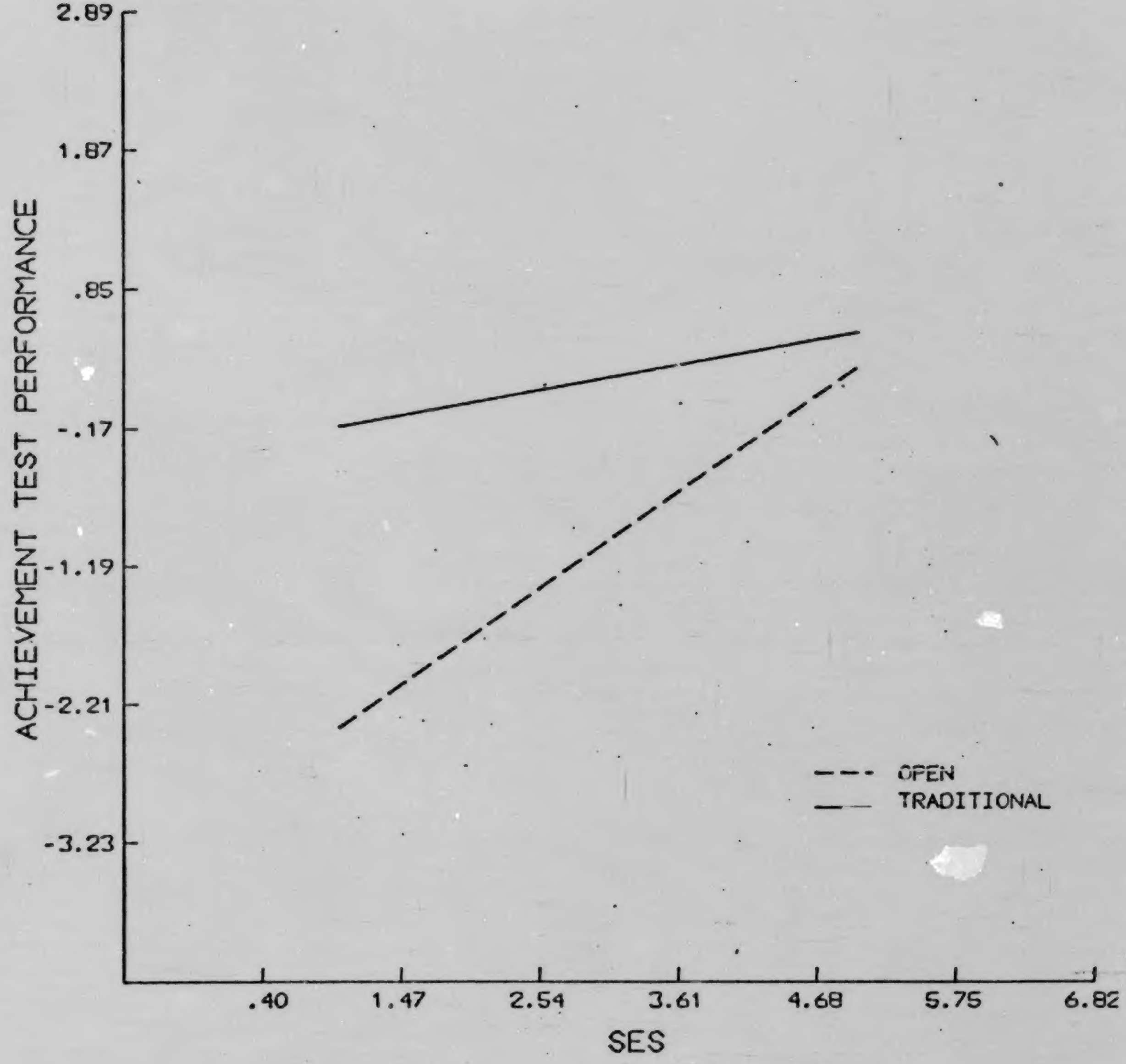


Figure 1. Joint (interaction) effect of type of class and socioeconomic status on achievement test performance, for boys

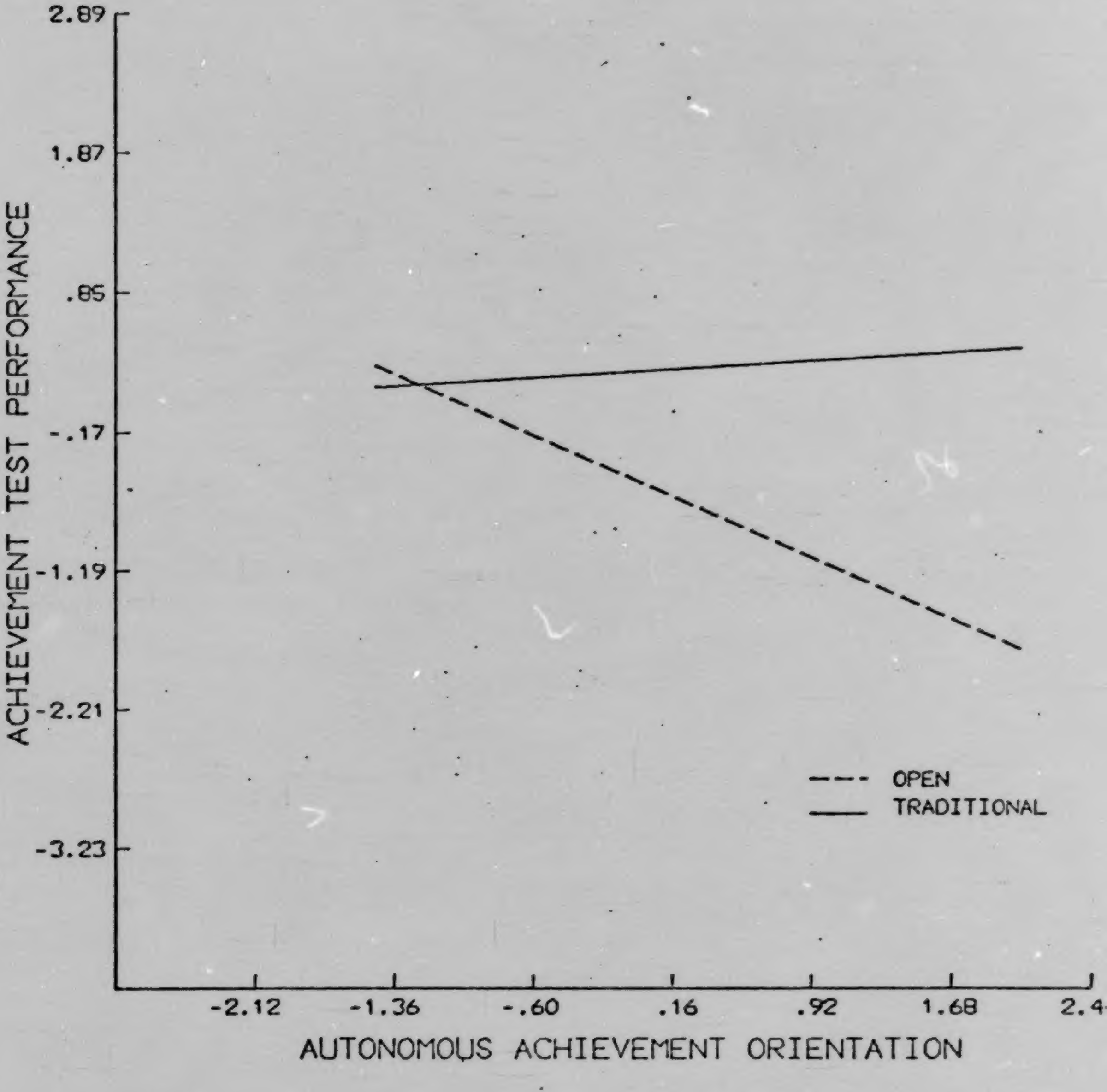


Figure 2. Joint (interaction) effect of type of class and autonomous achievement orientation on achievement test performance, for boys

impulsiveness/activity level), these means and standard deviations were derived from factor scores; raw scores were used for the non-factor indices. The graph lines extend to the highest and lowest scores on the continuous independent variable obtained by any child in the study. Although these obtained extreme scores in most cases were actually less than three standard deviations from the mean, all graphs, for consistency, present scale values up to and including three standard deviations. Thus, in Figure 1, the SES mean for boys was 3.61, the standard deviation was 1.07, and the obtained high and low extremes were 1 and 5 (the scale points on the horizontal axis extending beyond these extremes being hypothetical). The points on the vertical axis indicate that the mean achievement test performance factor score for boys was -.17 and the standard deviation was 1.02.

Figure 1 presents the interaction between type of class and SES, for boys. The regression lines do not cross in the sampled range (i.e., the interaction is "ordinal"). Although the achievement test scores were higher in traditional classes all along the SES range, the difference is substantial at the lower points, minimal at the higher points. Boys from the more affluent families did about equally well in either type of class; those from less affluent families obtained higher achievement test scores in traditional classes. (This indicates that the type of class main effect was produced primarily by the lower SES boys). It is possible that the traditional classroom is generally more consonant with the values and expectations of lower SES families, and that boys from such families therefore perform better on achievement tests in traditional classes. This finding is similar to that of Weiss (1973), who reported superior achievement test performance in traditional schools, but only in an inner city sample.

The interaction between type of class and autonomous achievement orientation is shown in Figure 2. This interaction qualifies the main effects which were found with both of these independent variables for boys. The superiority of boys' achievement test performance in traditional classes (over open) holds only for those with high scores on autonomous achievement orientation; and the negative effect of that orientation on achievement test performance holds only in open classes (in the traditional classes there appears to be essentially no relationship). It seems likely that a child with an autonomous orientation may be relatively encouraged to follow his own directions in an open class, and that these directions may in many cases be inconsistent with the somewhat routinized activities which may be necessary for superior achievement test performance.

Inquiry Skill. Fewer significant predictors of inquiry skill were found. Boys and girls each had one significant main effect and no significant interactions. Boys' scores on the preference for open situations factor related negatively to inquiry skill (a puzzling relationship), while girls' autonomous achievement orientation related positively to inquiry skill--and creativity (possibly indicating that these skills are more consistent with autonomy and self-direction than is achievement test performance).

Creativity. There were three significant predictors of boys' creativity--prior achievement, and interactions involving both prior achievement and autonomous achievement orientation. These interactions are graphed in Figs. 3 and 4. Both of these appear to be "disordinal" interactions, with the lines intersecting at about the center of the ranges. It can be seen, in Fig. 3, that prior achievement is positively related to creativity only in the open classes; the relationship in traditional classes is slightly negative. The interaction with autonomous achievement orientation (Fig. 4) looks similar; positive in the open classes, negligible (slightly negative) in the traditional classes. Since the correlation between these two independent variables (prior achievement and autonomous achievement orientation) is close to zero (-.05 for boys; see Table 19), it is possible that these interactions may represent two distinct routes to creativity in open classes.

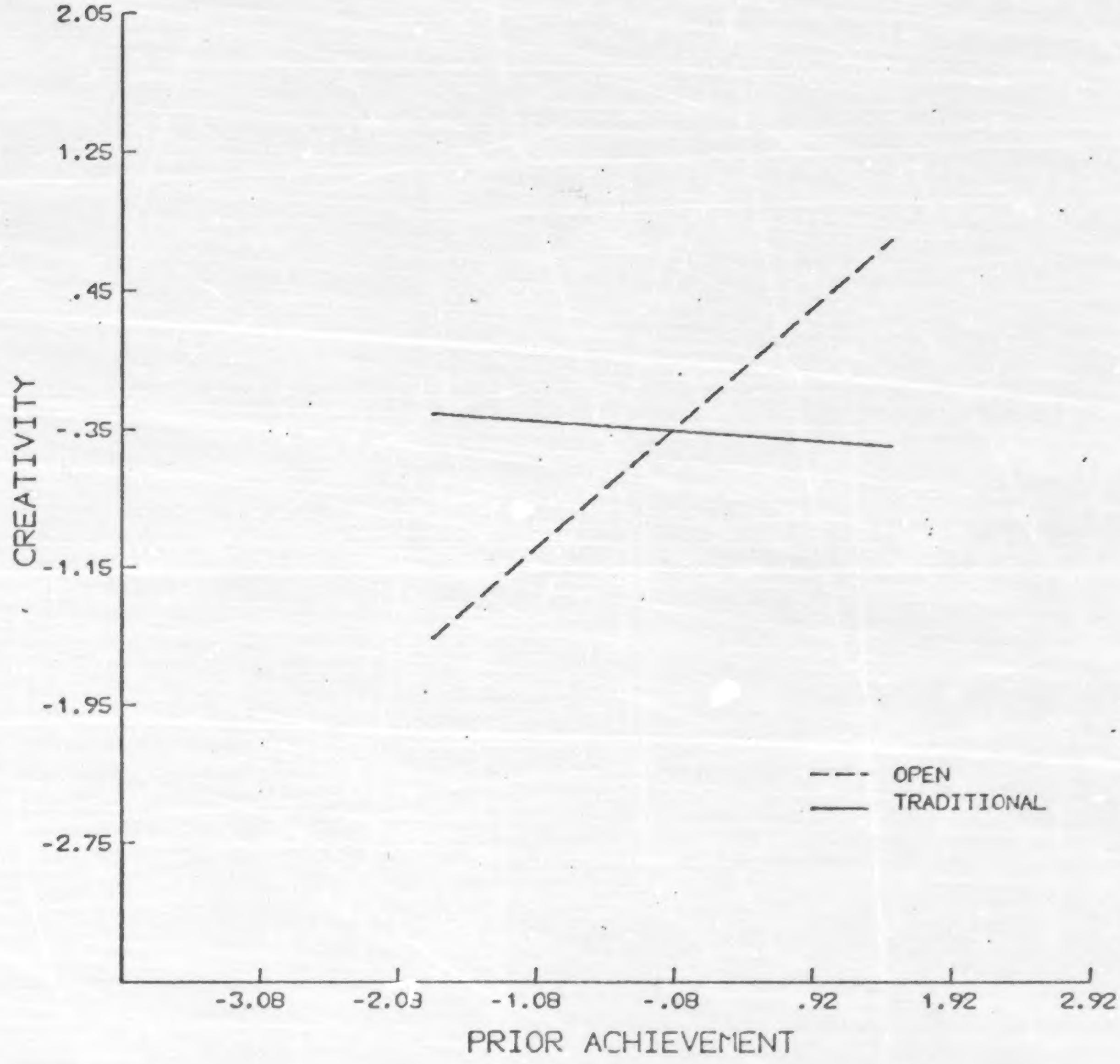


Figure 3. Joint (interaction) effect of type of class and prior achievement on creativity, for boys

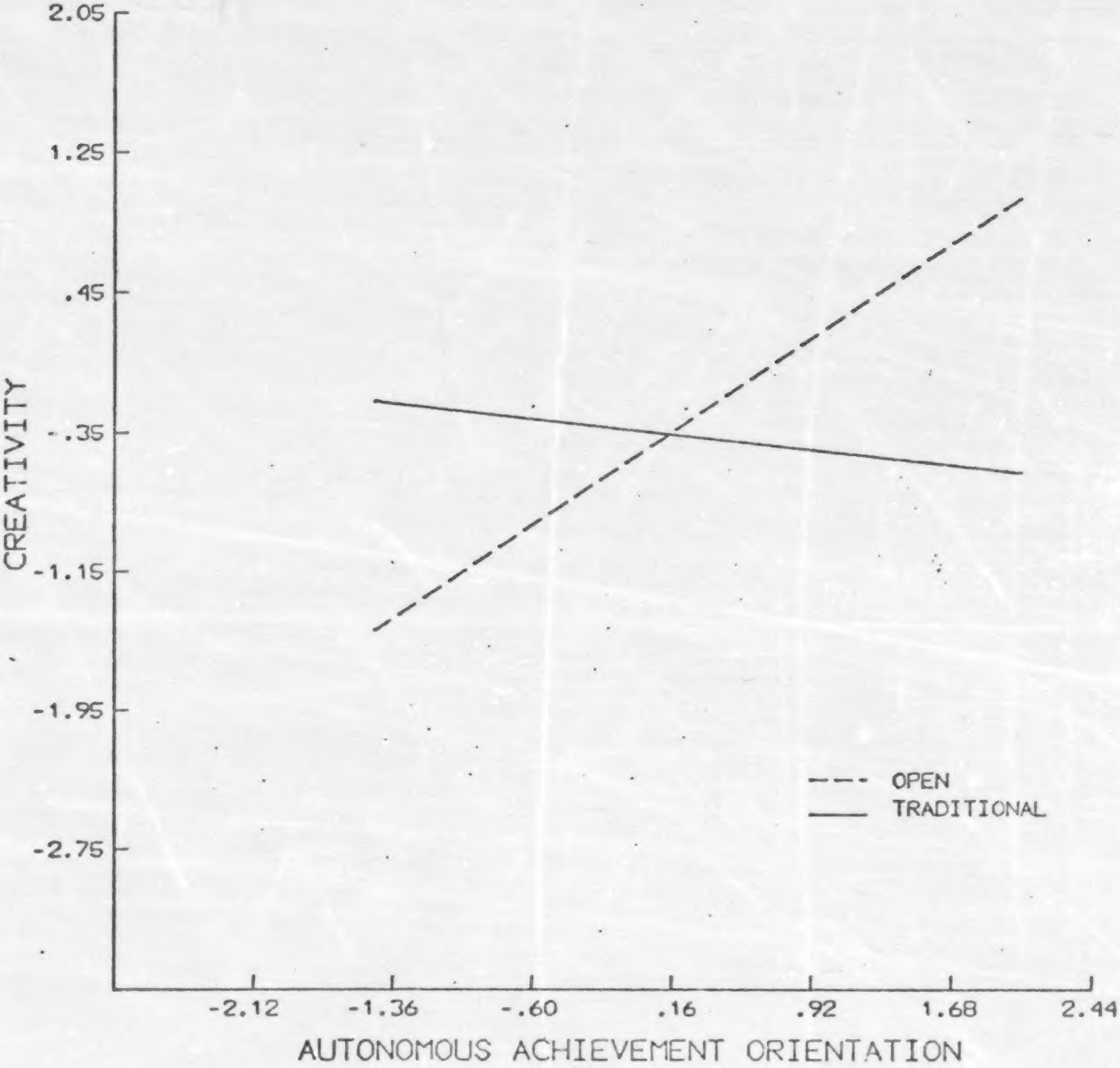


Figure 4. Joint (interaction) effect of type of class and autonomous achievement orientation on creativity, for boys

Boys with general intellectual skills may find the relative freedom in open classes conducive to developing creativity (while in traditional classes such skills lead them in other directions); at the same time those with an autonomous orientation to achievement may express that orientation creatively in open classes, where such an orientation is more in keeping with the general expectations and organization.

Writing Quality. Writing quality was predicted by prior achievement (positively for both sexes, but significant only for boys) and personal control orientation (positive for both sexes, and somewhat stronger for girls, but significant only for the total sample). Since writing is one of the basic skills which schools emphasize, it is not surprising that a measure of general achievement and a fairly consistent predictor of general achievement should relate to it. Significant interactions between type of class and preference for open situations were also found for writing quality among the boys and for the total sample. These are shown in Figs. 5 and 6. The interactions represented in these figures also appear to be disordinal. In addition, each of the lines is clearly sloped; the relationship with preference for open situations is positive in open classes and negative in traditional. Boys who state a preference for open situations develop better writing skills in open classes; those who do not state such a preference (or do state a preference for traditional situations) develop better writing skills in traditional classes. This of course is what was generally expected with this variable: that children would perform best in the type of class with which they felt most comfortable, particularly with regard to outcomes considered important in both types of class.

Relationships with School-Related Attitudes

Multiple regression analyses predicting self-confidence, democratic attitudes, concerns for others, autonomy, and value on self-direction are presented in Table 15.

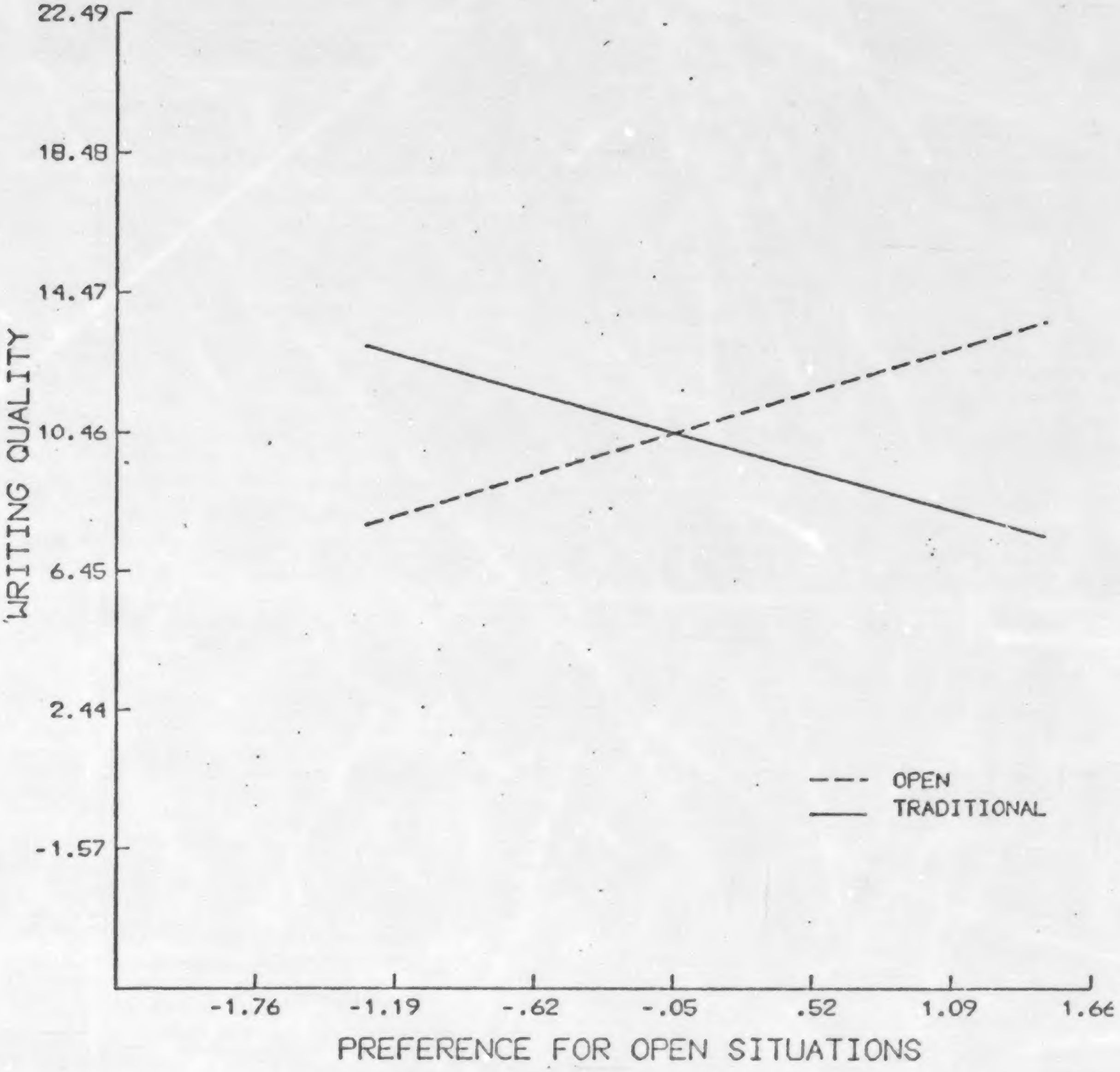


Figure 5. Joint (interaction) effect of type of class and preference for open situations on writing quality, for boys

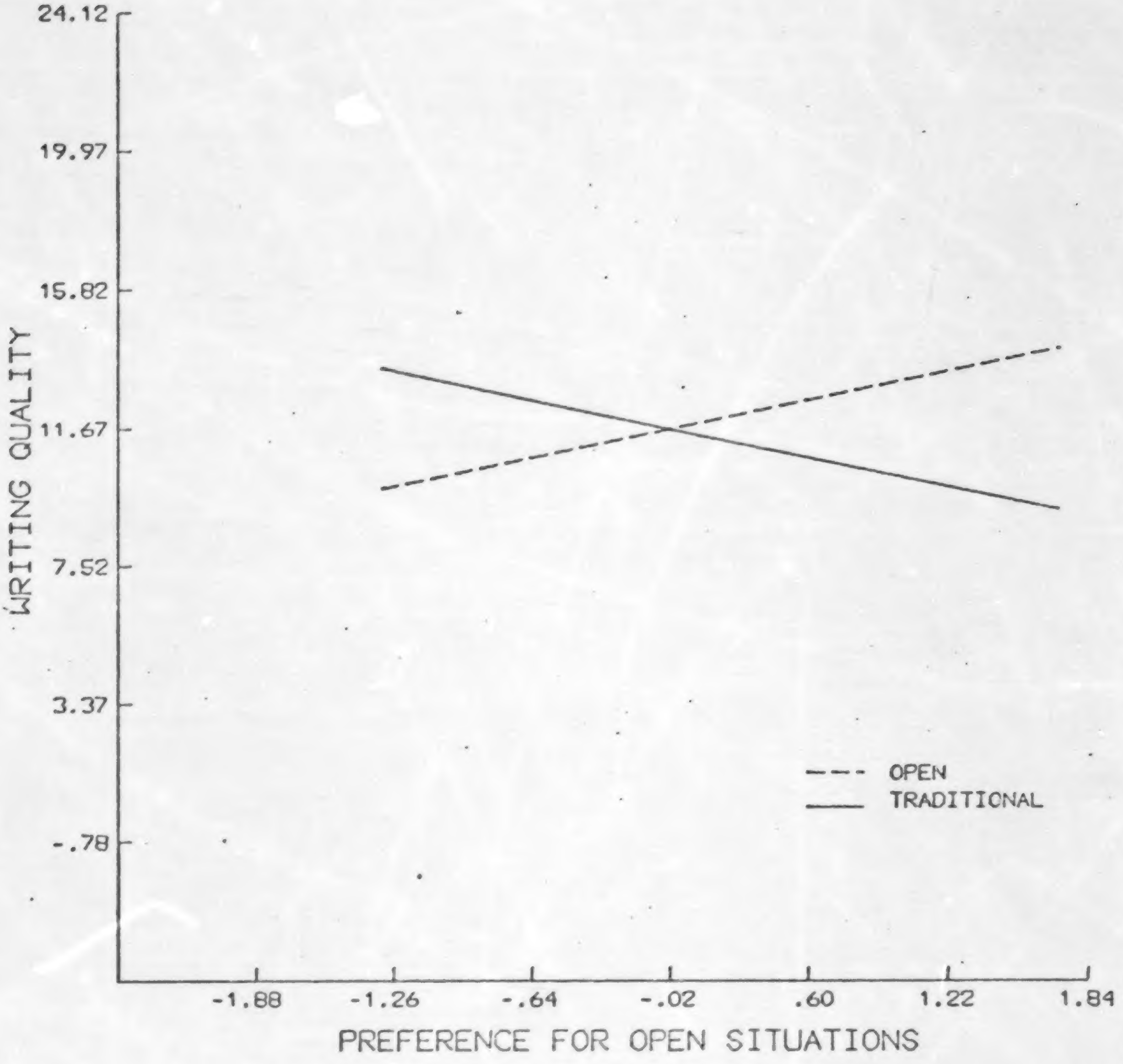


Figure 6. Joint (interaction) effect of type of class and preference for open situations on writing quality, for total sample

TABLE 15

Regression Coefficients (Betas) and Multiple Rs from Multiple Regression Analyses Predicting School-Related Attitudes

Independent Variables	Dependent Variables														
	Self-Confidence			Democratic Attitudes			Concern for Others			Decision-making Autonomy			Value on Self-Direction		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls[a]	Total	Boys	Girls	Total	Boys	Girls	Total
Prior Achievement	.34**	-.10	.17		.40*	.12					.07		.13		.03
Socio-econ. status				-.37						.20	.11				
Type class (T) (1=op,-1=trad)	-.19	-.29	-.10	.26						-.06	.43**	.16		.54*	.11
Compliant, conforming orien.	-.29*	-.56***	-.37***		-.22	-.20	-.26		-.11	-.41**	-.24	-.30**	-.21		-.16
Pers. control orientation		.10	.15	-.17					.09	-.12	-.40**	-.18		-.40*	-.19
Auton. ach. orientation	.12	.39**	.21*	.42*						.10		.12	-.19	.28	
Pref. for open sits.		.12								.44**		.20			
Impulsiveness/ Activity level.			-.18	-.14	.22		.17				.52***	.22*	.20	.01	
T X Pr. ach.		.21										-.16	-.22		-.19
T X SES			-.15	-.28			-.13		-.12	.25			.29*		
T X compl. or.		.26													-.12
T X contr. or.		.20			-.20				.21	.14	.41**	.30**			
T X aut. ach. orientation							.46**		.17				.17		.17
T X pref. for open sits.							-.17			.27*			.18		
T X activity level									-.13					.54*	
Multiple R	.50**	.76**	.57***	.44	.52*	.24	.48*		.33	.66**	.79***	.61***	.56*	.58*	.37
Multiple R^2	.25	.57	.33	.19	.27	.06	.23		.11	.44	.63	.37	.31	.34	.14

Note: boys N=56, girls N=36, total N=92; variables with F values < 1.0 not entered into regression equation.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

a. No independent variable reached the minimum F for entry in this analysis.

Self-Confidence. Self-confidence was significantly predicted by prior achievement for boys, by autonomous achievement orientation for girls (both positive relationships), and by compliant, conforming orientation for both sexes (a negative relationship). It is interesting that boys' self-confidence is apparently enhanced by a high level of academic achievement, while girls' is not. This finding bears comparison with results obtained in a number of studies reported by Crandall (1969) showing that girls' stated achievement expectancies were more likely to be underestimated, relative to their own prior performance, than were boys' achievement expectancies. Girls' self-confidence seems to derive from other sources. In addition to the positive relationship with autonomous achievement orientation, shown in Table 15, inspection of the correlations in Table 19 (Appendix A) reveals that girls' self-confidence also relates positively to creativity, writing quality, and the teacher rating of autonomous intellectual orientation. Girls with autonomous, individualistic orientations, and who perform well in areas other than the standard academic appear to be those with high levels of self-esteem. It is possible that self-confidence is the prior characteristic here; that only girls who are initially self-confident are able to be independent and autonomous, and to explore these areas. That self-confidence may be a relatively stable trait may be indicated by the fact that it relates only to measures of individual characteristics, not to any environmental measures (including type of class and the various interactions with type of class).

Democratic Attitudes. Democratic attitudes also manifested only main effects with individual characteristics; girls' prior achievement and boys' autonomous achievement orientation each demonstrated significant positive relationships. Since the multiple correlations for this variable were relatively weak (only one being significant), the relationships difficult to interpret and away from the focus of the present research (which is on main effects of, and interactions with type of class), these two effects will not be discussed further at this point.

Concern for Others. Concern for others was also not very well predicted, on the whole. For girls, none of the independent variables reached the minimum criterion for inclusion in the regression equation, so the regression analysis was not done. For boys, there was a single significant effect, shown by the positive beta for the type of class by autonomous achievement orientation interaction. This interaction is plotted in Figure 7, and can be seen to be clearly disordinal; the relationship appears to be positive in open classes and negative in traditional classes. It seems likely that both an autonomous, individual approach to learning and the development of cooperation and a concern for others are actively promoted and valued in open classes and thus are not inconsistent and even positively related (for boys). In traditional classes, however, an autonomous approach to learning may involve a more isolated and competitive orientation which is inconsistent with, and thus negatively related to, the development of a concern for others.

Decision-Making Autonomy. Autonomy is the most strongly predicted of the school-related attitudes shown in Table 15, with several significant main effects and interactions. Type of class shows a significant positive relationship with decision-making autonomy for girls, meaning that scores were higher in open classes. Since children were given more decision-making opportunities in the open classes (Table 5), it is not surprising that they should state stronger values on decision-making autonomy, but the limitations of such an effect to girls was not expected. Since autonomous decision-making is considered a particularly valued characteristic for males in this culture, it may be that for the boys it was a more stable internal characteristic, less subject to situational effects. Compliant, conforming orientation and personal control orientation were each negatively related to decision-making autonomy, the first significant only for boys, the second only for girls. The first of these is unsurprising, the second puzzling (however, the variable also appears in an interaction, shown in Figure 9, which we will examine presently).

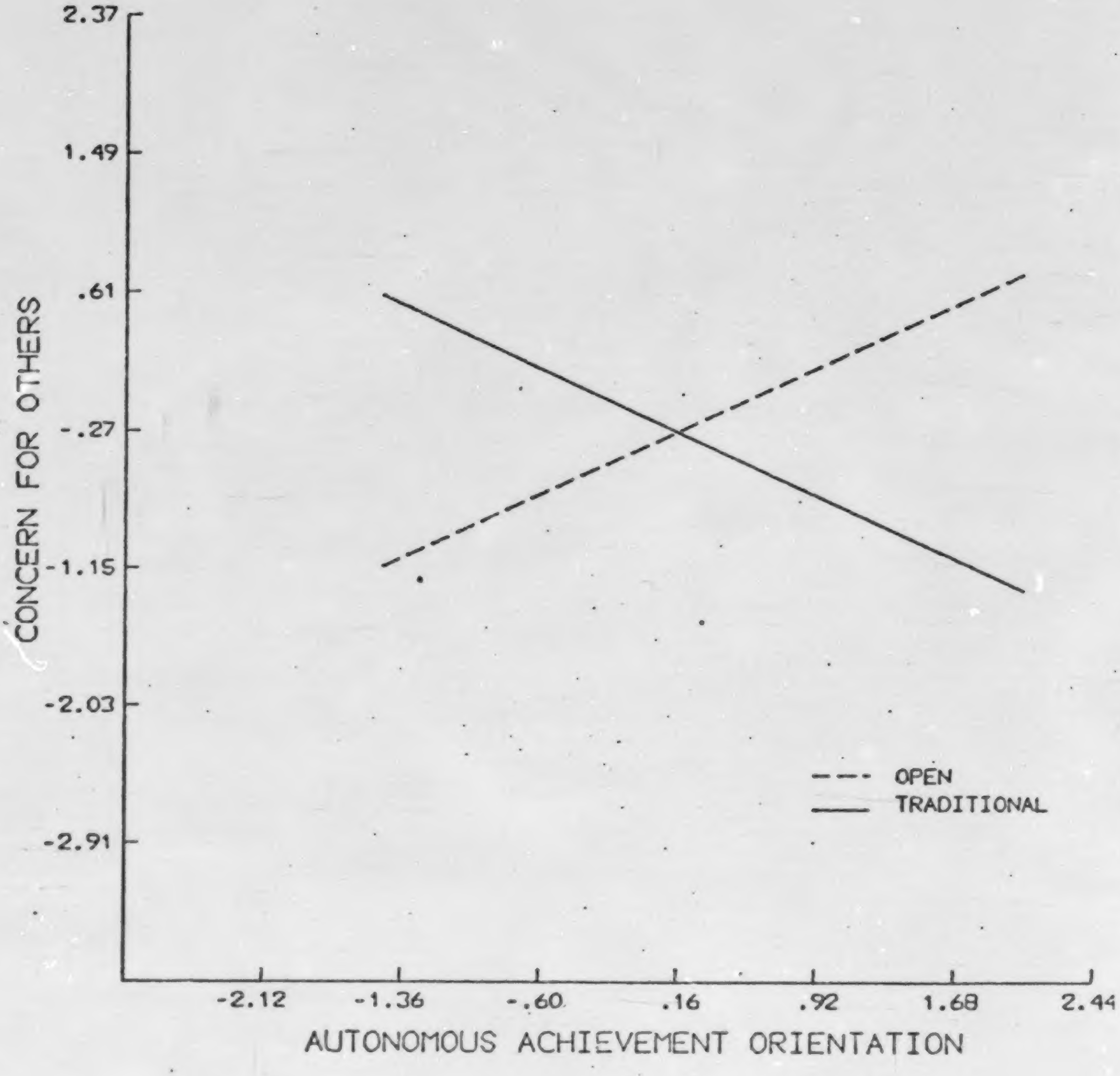


Figure 7. Joint (interaction) effect of type of class and autonomous achievement orientation on concern for others, for boys

There were two other significant main effects with autonomy: Boys who stated a preference for open situations were most likely to be those who valued decision-making autonomy (which, of course, was an element in the open situation descriptions); girls who were rated high on impulsiveness/activity level tended also to score high on autonomy.

Interactions with type of class which significantly affected decision-making autonomy are shown in Figures 8, 9, and 10. Boys' preference for open situations, which showed a significant positive main effect, is also involved in an interaction. The positive relationship occurred in both types of class, but the slope is considerably steeper (the effect is stronger) in open classes. Since children's decision-making autonomy is more exercised and is probably a more desired outcome in open classes, this relevant preference may have more opportunity to show an effect in these classes.

The other two interactions shown represent the joint effect of type of class and personal control orientation on autonomy; Figure 9 shows the effect for girls, 10 shows it for the total sample. From Fig. 9 it can be seen that the negative main effect which was found for girls' personal control orientation is limited to traditional classes; there is essentially no effect in the open classes. The shape of the interaction for the total sample (Fig. 10) is somewhat different; the intersection of the lines is closer to the center of the scale and there is a clearer positive relationship in the open classes. It is possible that those with a strong belief in their own control of situations and outcomes have this belief somewhat inhibited and frustrated in traditional classes, and therefore, perhaps as a reaction, state less of a value on decision-making autonomy than those with weaker personal control orientations. In open classes, where there actually is a higher level of "personal control", there is more of a tendency for the relationship to be positive.

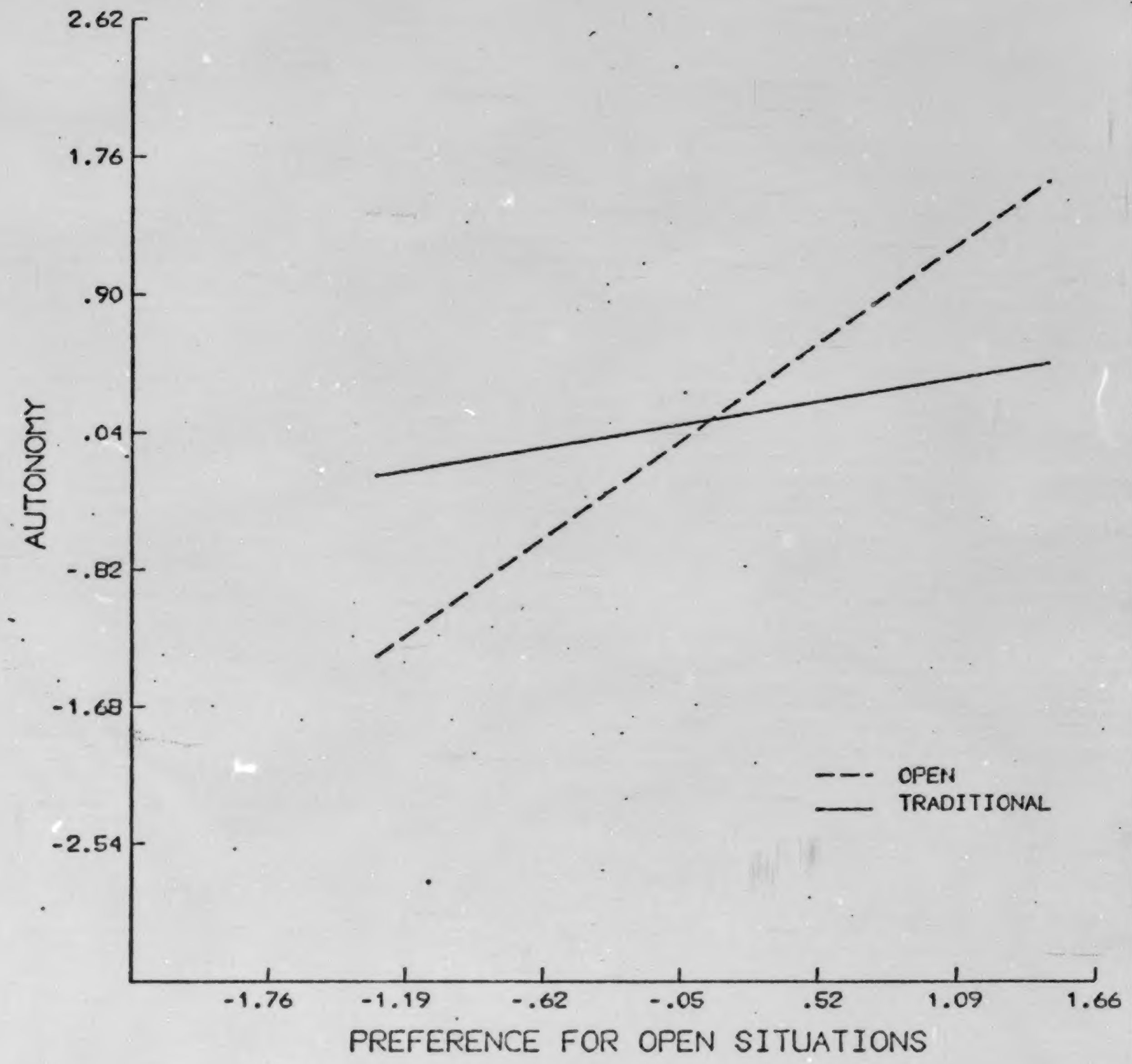


Figure 8. Joint (interaction) effect of type of class and preference for open situations on decision-making autonomy, for boys

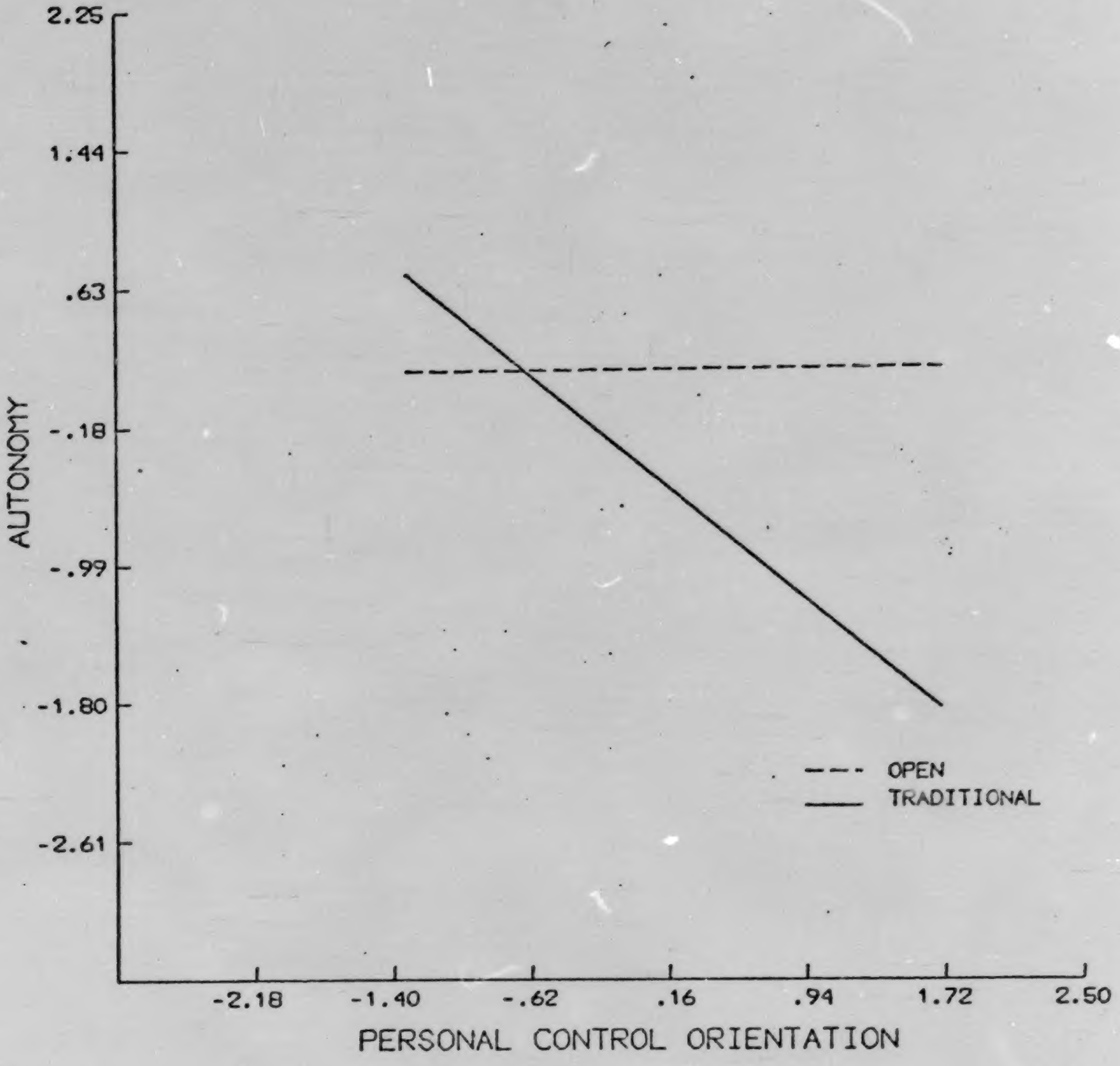


Figure 9. Joint (interaction) effect of type of class and personal control orientation on decision-making autonomy, for girls

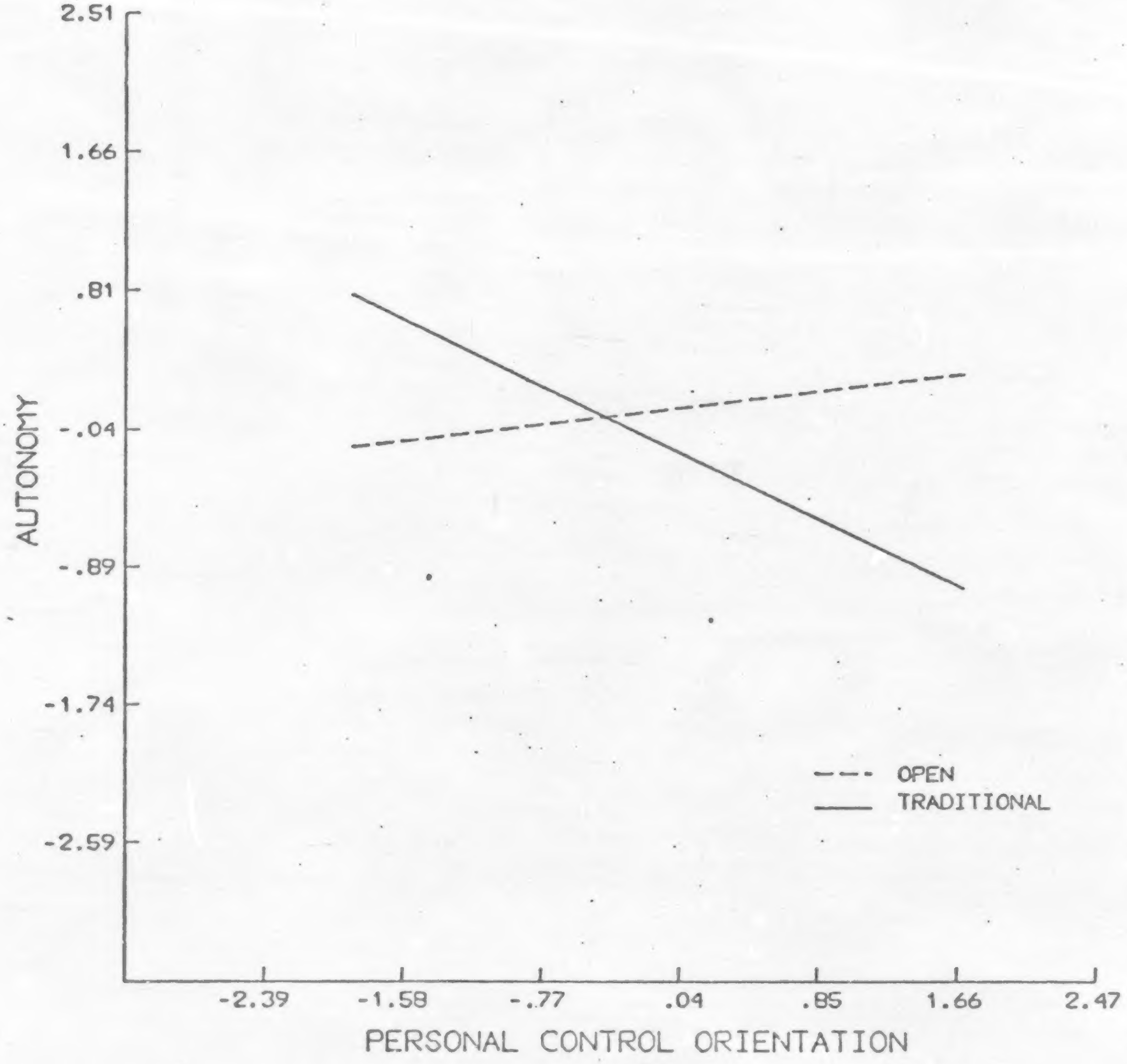


Figure 10: Joint (interaction) effect of type of class and personal control orientation on decision-making autonomy, for total sample

Value on Self-Direction. As with autonomy, value on self-direction shows a significant, positive beta for type of class (a higher score in open classes) only for girls. It was expected that a greater value on self-direction would be developed in open classes, but for both sexes. Since self-direction is also considered a more valued characteristic for males, it again may be less subject to situational influences for them. The only other significant main effect is a puzzling negative relationship between personal control orientation and self-direction for girls.

There were also two significant interaction effects on value on self-direction; one for boys, between type of class and socioeconomic status, and one for girls, between type of class and impulsiveness/activity level. Figure 11, portraying the boys' interaction, shows socioeconomic status positively related to self-direction in open classes and negatively related in traditional classes. The interaction appears weakly disordinal, so that the lower SES boys value self direction more in traditional than in open classes, while the higher SES boys value it more in open than traditional. We suggested earlier that open classes may be more consonant with the orientations and expectations of higher SES families, traditional classes with those of lower SES families; perhaps boys state more of a value on self-direction in a class whose "directions" are more consistent with those they would select themselves.

The girls' impulsiveness/activity level interaction (Fig. 12) shows a positive relationship with value on self-direction in open classes, and a negative relationship in traditional classes. It may be that highly active and energetic girls initiate or try to initiate many activities on their own, and that such attempts are encouraged or rewarded in open classes, discouraged or punished in traditional classes. If this is so, active girls may come to value self-direction in open classes because of its positive effects for them, but to disvalue it in traditional classes because of its negative effects. While this seems plausible, one would have expected the same to hold for boys as well.

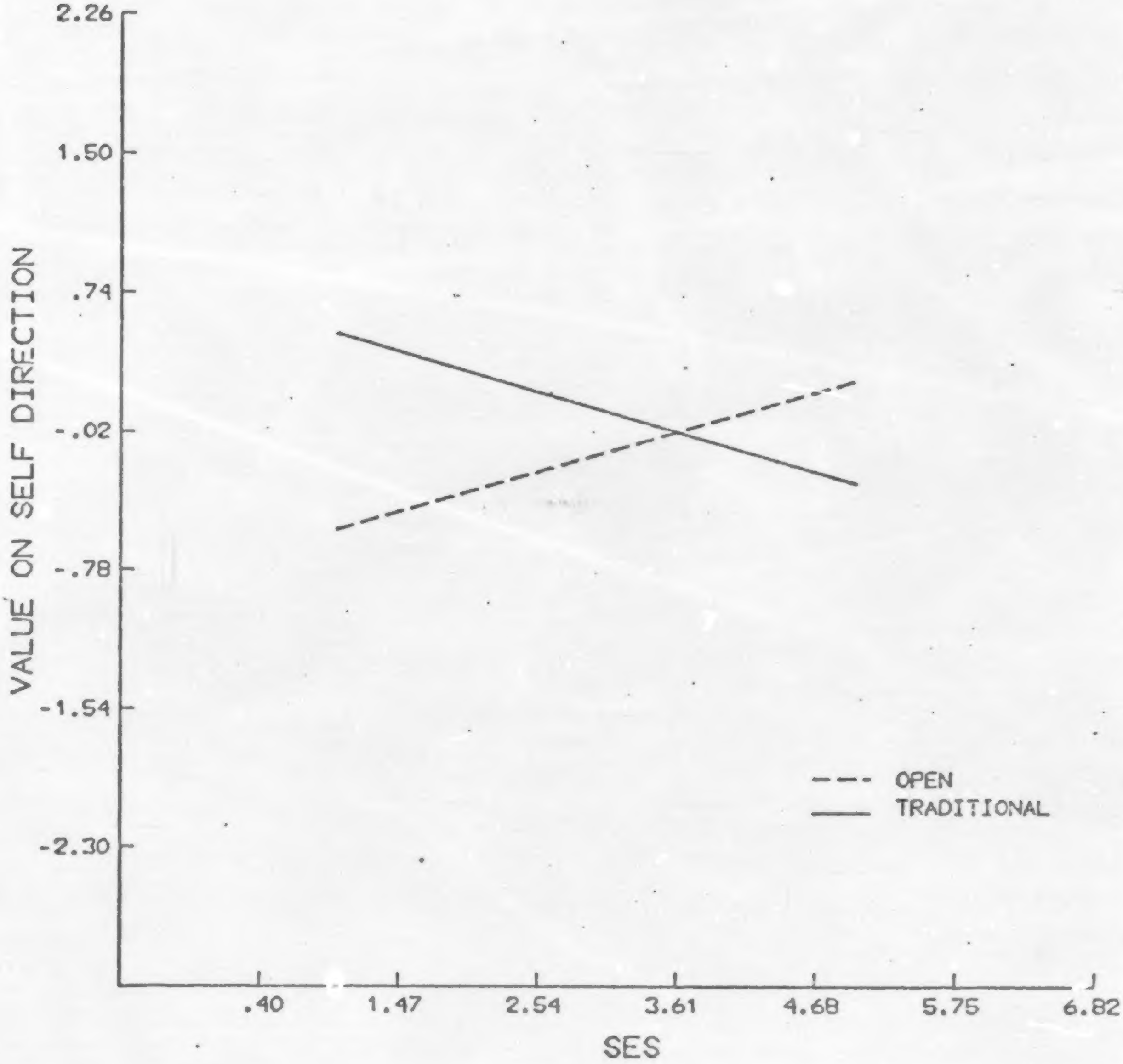


Figure 11. Joint (interaction) effect of type of class and socioeconomic status on value on self-direction, for boys

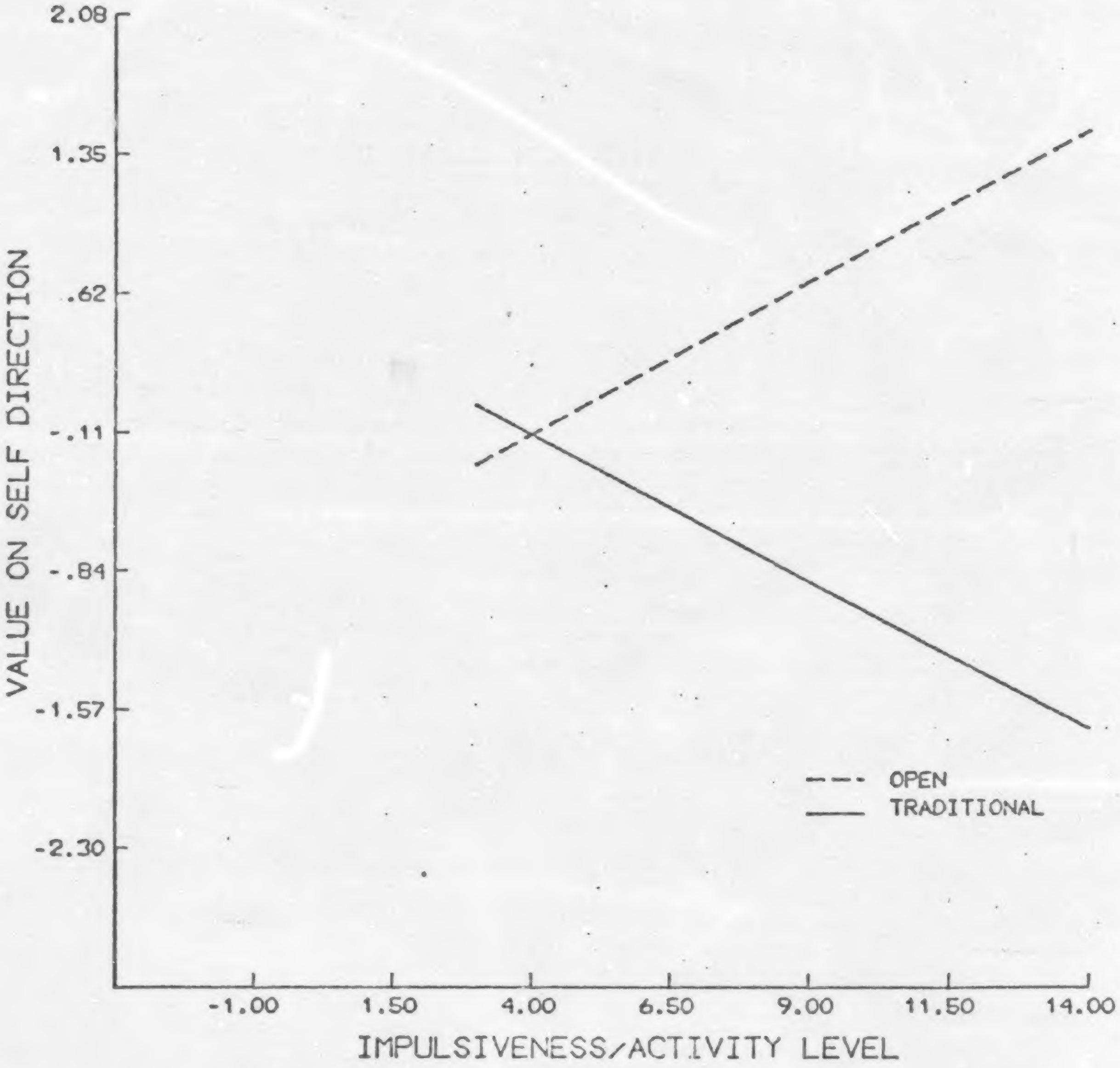


Figure 12. Joint (interaction) effect of type of class and impulsiveness/activity level on value on self direction, for girls

Relationships with Self- and Class-Evaluations

Relationships with the Self- and Class-Evaluation factor scores are shown in Table 16.

Enjoyment of Class. The first of these, enjoyment of class, shows two main effects for boys (and the total sample), none for girls, and no interaction effects. For boys, there is a significant positive regression coefficient for personal control orientation, and a significant negative coefficient for impulsiveness/activity level. Boys who attribute causation to themselves tend to state that they enjoy the classes they are in, regardless of the type of class; while those who are highly impulsive and active tend to dislike their classes, whatever type they are. It is interesting that enjoyment of class, at least as represented by these factor scores, relates only to personal characteristics. Boys' rated enjoyment of the class seems to be determined by what they bring to the class within themselves, and not at all by what they experience in the class. For girls, however, neither type of variable had a significant effect.

Social Involvement (Friends). The second outcome factor in this table, social involvement (friends), shows a positive relationship with autonomous achievement orientation, significant for girls and the total sample. While this relationship is not particularly surprising, it is not easy to see why this and no other main effect should have occurred with this dependent variable. The only significant effect with social involvement for boys was the type of class by socioeconomic status interaction, shown in Fig. 13. Higher status boys were more socially involved in traditional classes, while lower status boys were more socially involved in open classes. The fact that the interaction for girls, while not quite significant, went in the opposite direction, makes one wonder about the stability of this interaction, especially in the absence of theoretical reasons to expect different effects for boys and girls in this case.

TABLE 16

Regression Coefficients (Betas) and Multiple Rs from Multiple Regression Analyses Predicting Self- and Class-Evaluations

Independent Variables	Dependent Variables								
	Enjoyment of Class			Social Involvement (Friends)			Perceived Disruptiveness in class		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Prior achievement	-.30		-.15	-.21		-.21		.13	.10
Socio-economic status	.02		.10	-.11	-.08		.07	.24	
Type of class (T) (1=open, -1=trad)	.01	-.23	-.19	-.06	.14	-.15	.02		
Compliant, conforming orientation				.23	-.13				
Personal control orientation	$.42^{**}$		$.25^{*}$						-.10
Autonomous achievement orientation		.26		.24	$.46^{**}$	$.24^{*}$			
Preference for open situations					.17		.25	.04	
Impulsiveness/Activity level	$-.38^{**}$		$-.29^{**}$		.21	-.15	-.19	.20	
T X prior achievement	.19	.23	.16	-.28	$-.44^{*}$	$-.22^{*}$		$-.54^{**}$	-.17
T X socio-economic status				$-.35^{*}$	.30		.33		.13
T X compliant, conforming orient.					$-.33^{*}$				
T X personal control orient.		-.18		.24	-.29				
T X autonomous achievement orient.							$-.39^{**}$	$.33^{*}$	
T X preference for open situations							$.32^{*}$		.11
T X activity level					.40				
Multiple R	$.53^{**}$	.49	$.43^{**}$	.51	$.77^{**}$	$.39^{*}$	.49	$.65^{**}$	.27
Multiple R^2	.29	.24	.19	.26	.60	.15	.24	.42	.07

Note: Boys N=56, girls N=36, total N=92; variables with F values < 1.0 not entered into regression equations.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

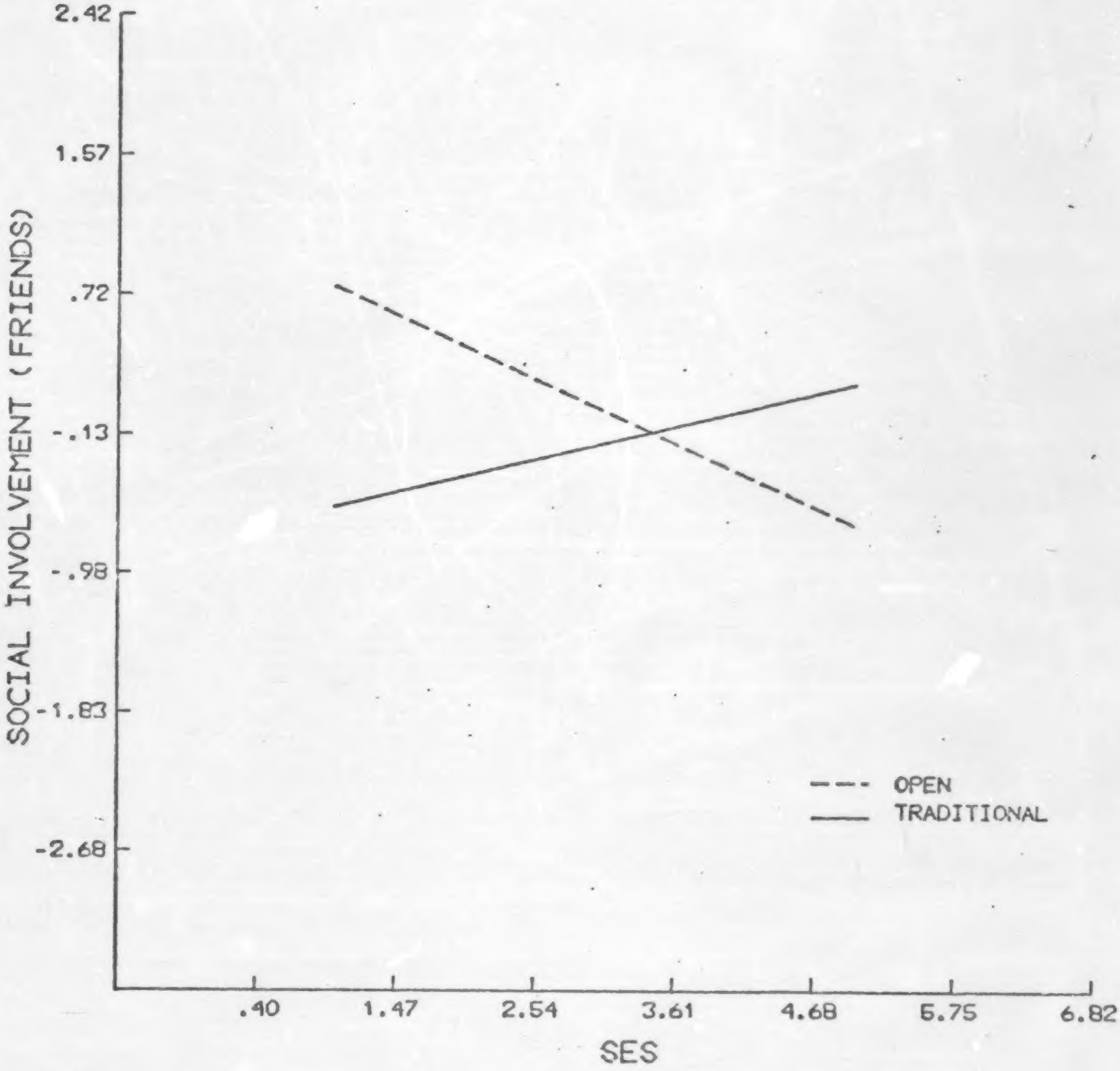


Figure 13. Joint (interaction) effect of type of class and socioeconomic status on social involvement (friends), for boys

Type of class and prior achievement also interacted to affect the measure of social involvement; the direction of the interaction was consistent for the two sexes, but was significant only for girls and the total sample. These interactions (Figs. 14 and 15) show that those with high levels of prior achievement are more socially involved in traditional classes, those with low levels of prior achievement are more socially involved in open classes. This finding seems consistent with the earlier suggestion that achievement tests probably reflect more closely the academic goals and practices of traditional than open classes. If such goals and practices also relate to the informal status structure of the class, it seems plausible to infer that the prior achievement level would tend to relate positively to social status (hence social involvement) in traditional classes and negatively (or not at all) in open classes.

The other interaction obtained with this dependent variable combined type of class and compliant, conforming orientation for girls (Fig. 16). This finding also seems consistent with earlier discussions about the nature of the difference between open and traditional classes: compliance, being more valued in traditional classes, relates positively to social involvement (acceptance) in those classes; in open classes, where it is less valued, and perhaps to some degree is negatively valued, compliance relates negatively to social involvement.

Perceived Disruptiveness in Class. The third evaluation factor, perceived disruptiveness in class, showed no significant main effects, but four significant interactions, shown in Figures 17, 18, 19, and 20. The type of class by prior achievement interaction found for girls (Fig. 17) shows greater perceived disruptiveness in traditional than open classes for those with high levels of prior achievement and the reverse for those with low levels of prior achievement. High achievers, perhaps attuned to a calm academic atmosphere in traditional classes, may find conflict in such classes relatively more disturbing (while in open classes

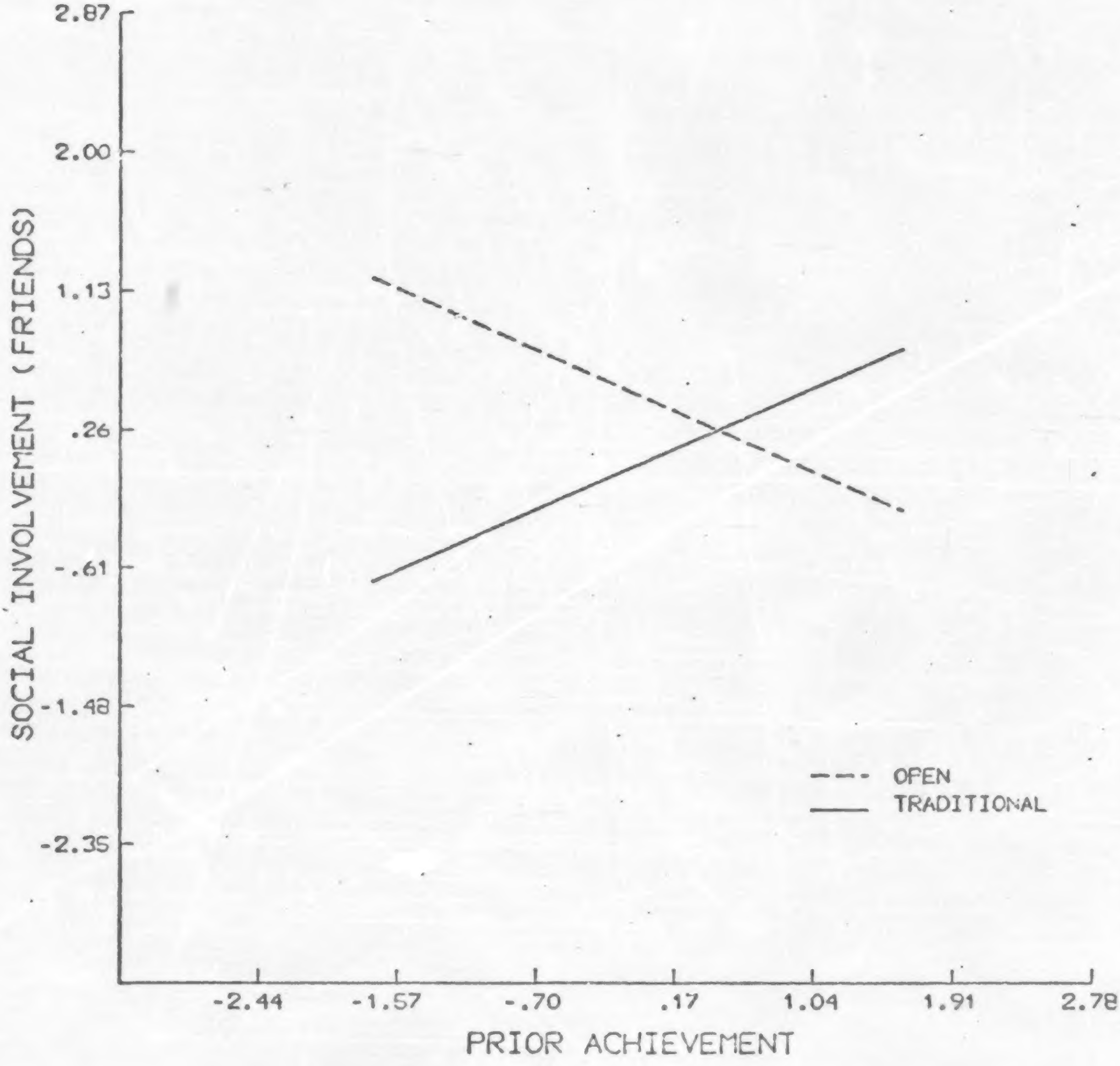


Figure 14. Joint (interaction) effect of type of class and prior achievement on social involvement (friends), for girls

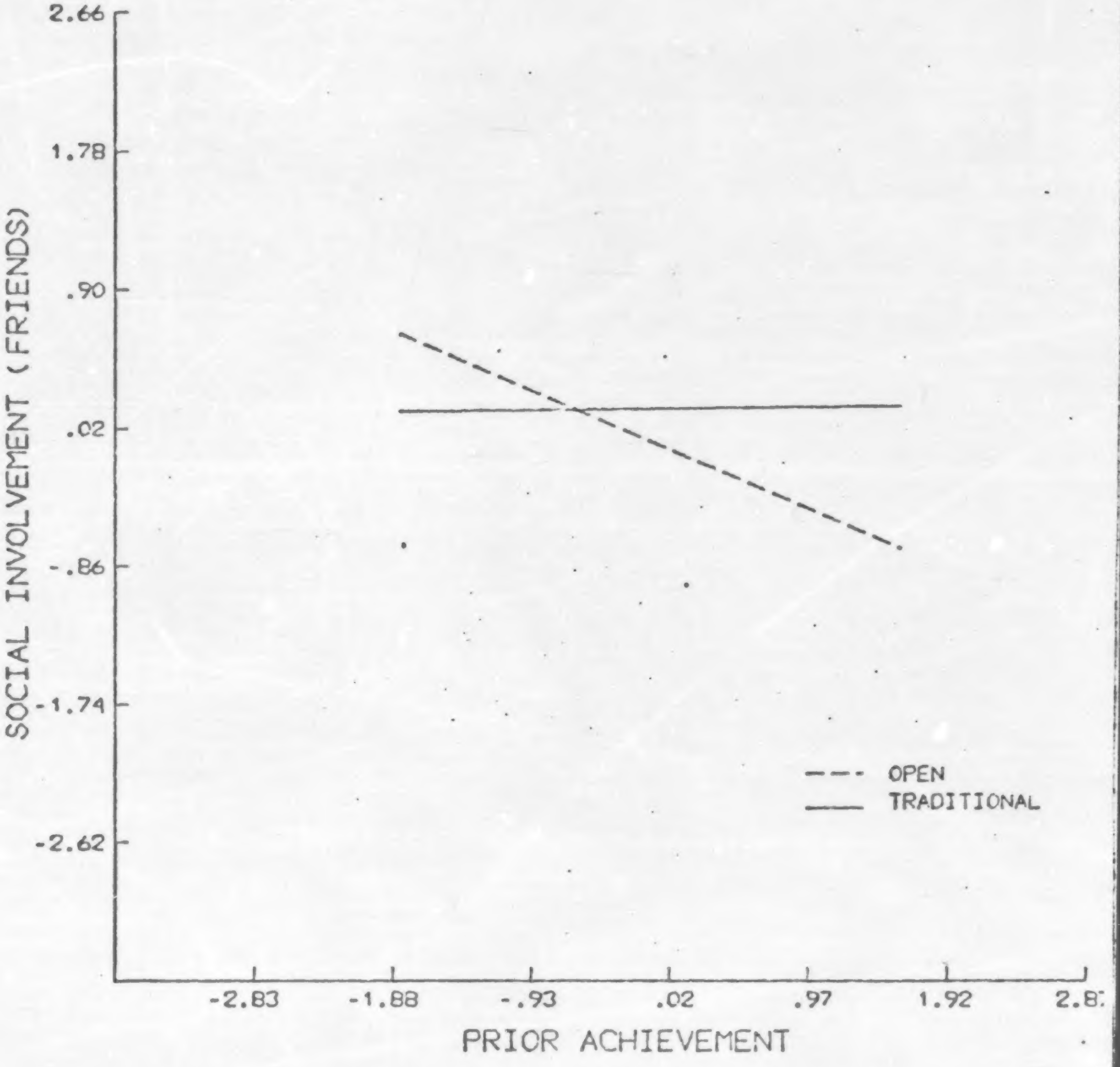


Figure 15. Joint (interaction) effect of type of class and prior achievement on social involvement (friends), for total sample

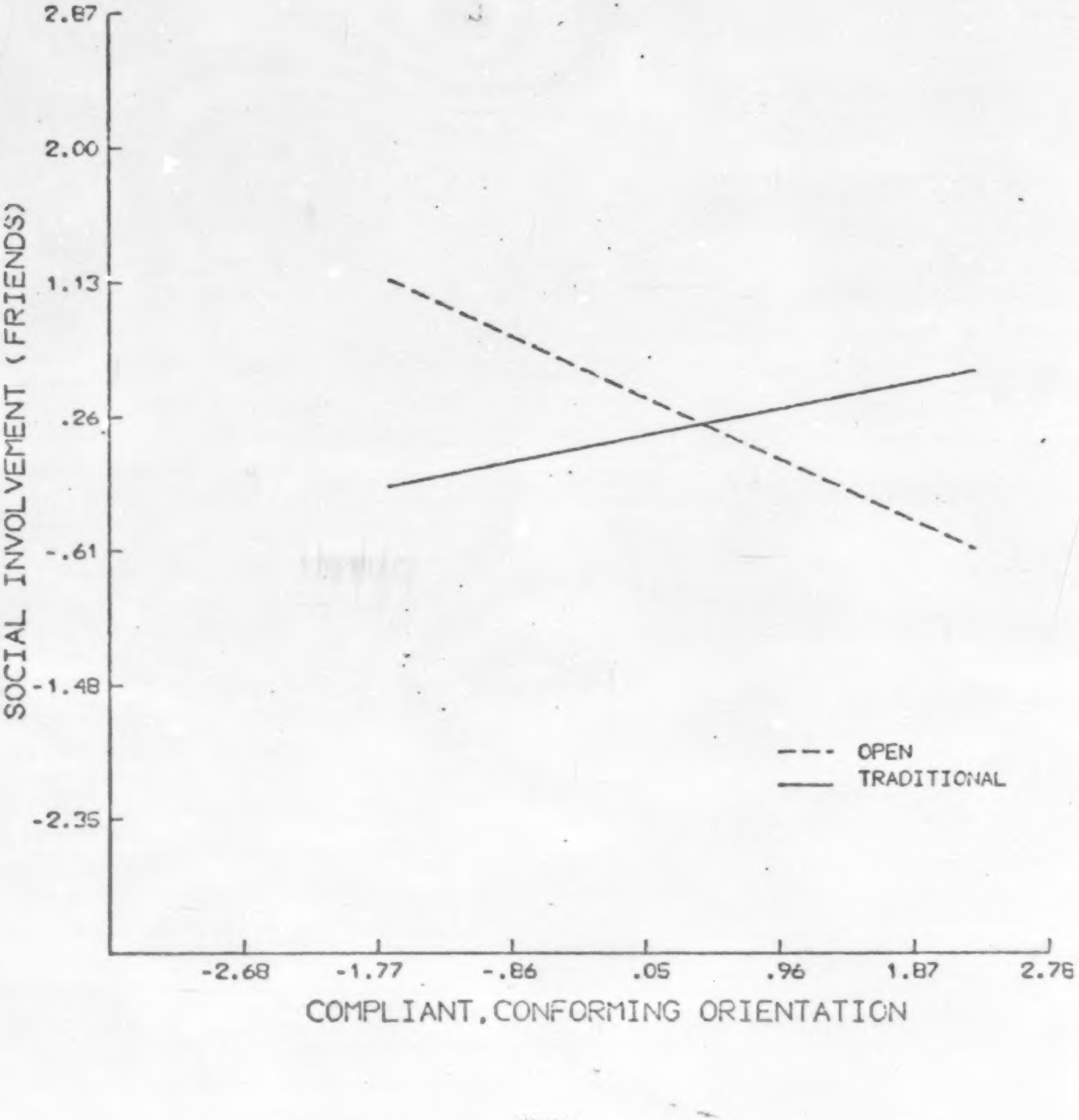


Figure 16. Joint (interaction) effect of type of class and compliant, conforming orientation on social involvement (friends), for girls

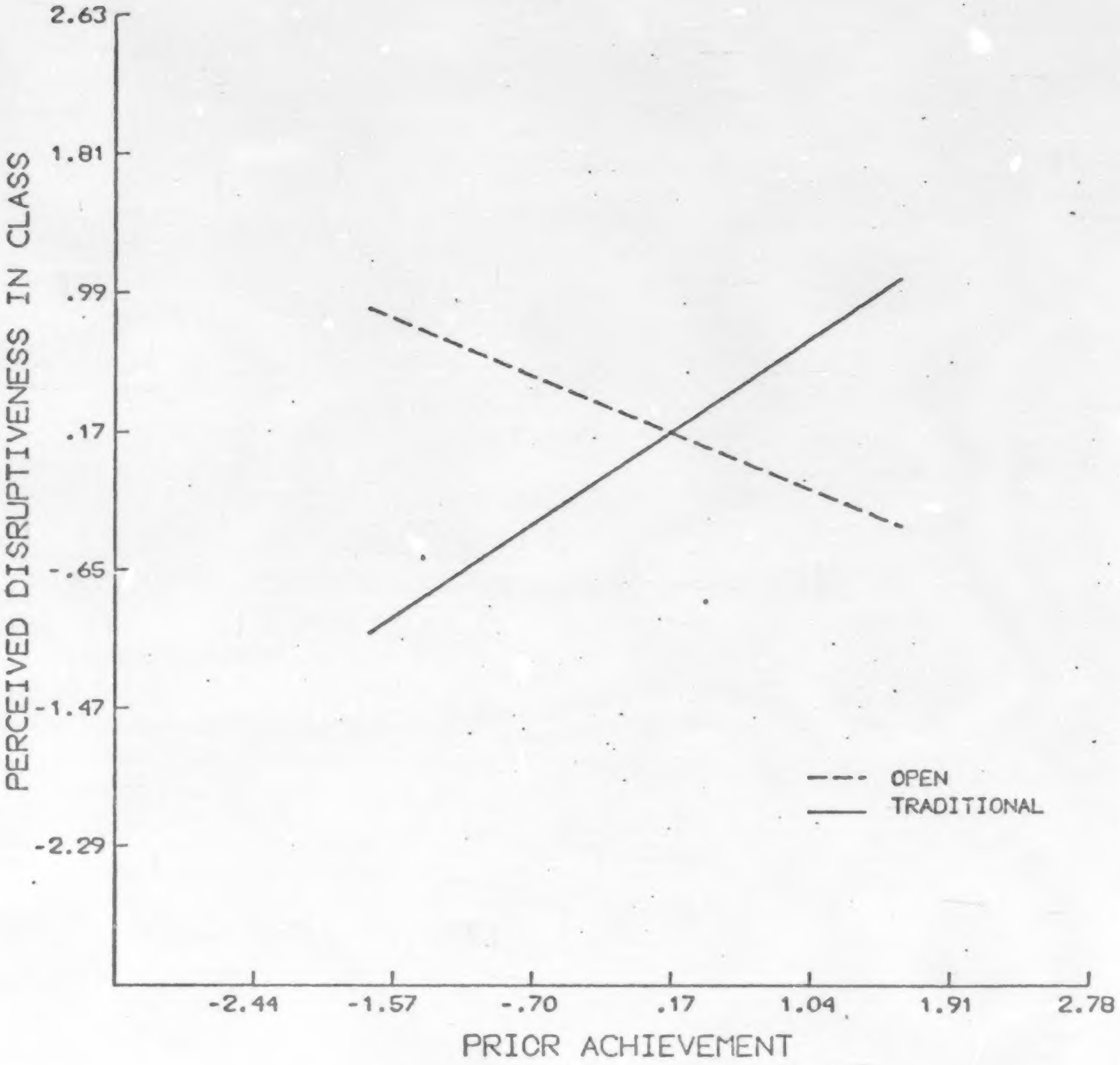


Figure 17. Joint (interaction) effect of type of class and prior achievement on perceived disruptiveness in class, for girls

they do not have the same expectations); low achievers, finding classwork difficult in any classroom, may find the freer and more active atmosphere of the open class distracting and frustrating to their attempts to master the required material (and thus perceive it as more conflictful).

Autonomous achievement orientation showed interactions with type of class to influence perceived disruptiveness; these were significant but in opposite directions for boys and girls (Figs. 18, 19). The shape of the interaction obtained with boys is closer to what was expected: assuming that the open class organization is more consistent with an autonomous achievement orientation, those who score high on this orientation may therefore be less likely to see extraneous activities in the open class setting as "conflict"; while those who do not have an autonomous orientation perhaps see the autonomous efforts of others in open classes as producing conflict. Why the relationship is reversed for girls is not clear. The explanation may relate to the fact that girls scored significantly lower on the measure of autonomous achievement orientation (Table 19); this orientation is probably seen as more appropriate for boys in this culture; and as such it may have different meanings for boys and girls. Further speculation seems unwarranted.

The last interaction with perceived disruptiveness involves types of class and preference for open situations (Figure 20). Boys high on this preference saw open classes as more disruptive, boys low on the preference saw traditional classes as more disruptive. This is not what would have been predicted. Boys preference for open situations also correlated positively (.33) with impulsiveness/activity level (Table 19); those scoring high may value open situations for the freer activity possibilities, and perceive greater disruptiveness (not necessarily disapprovingly) as a result of their emphasis on this aspect of "openness."

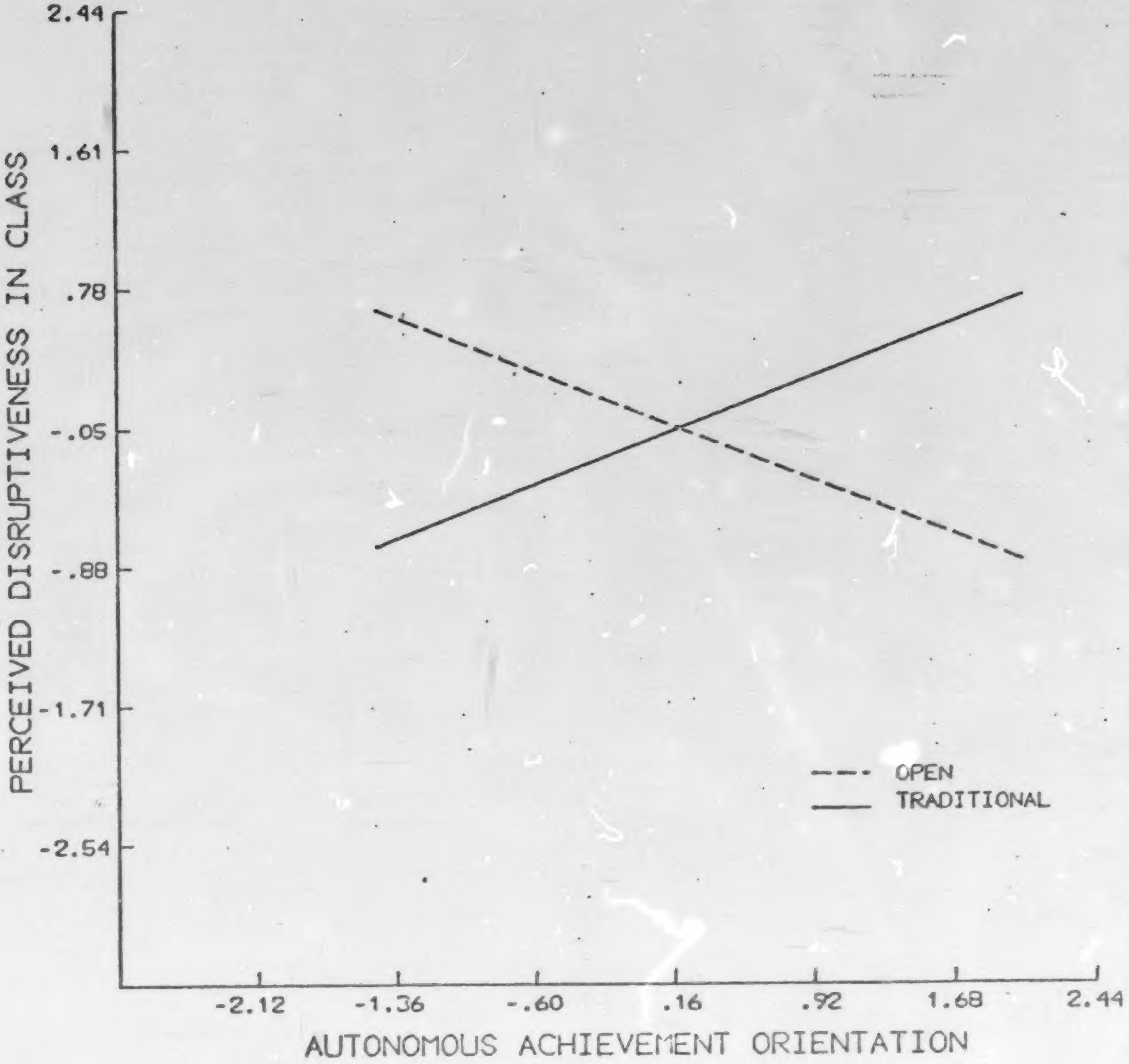


Figure 18. Joint (interaction) effect of type of class and autonomous achievement orientation on perceived disruptiveness in class, for boys

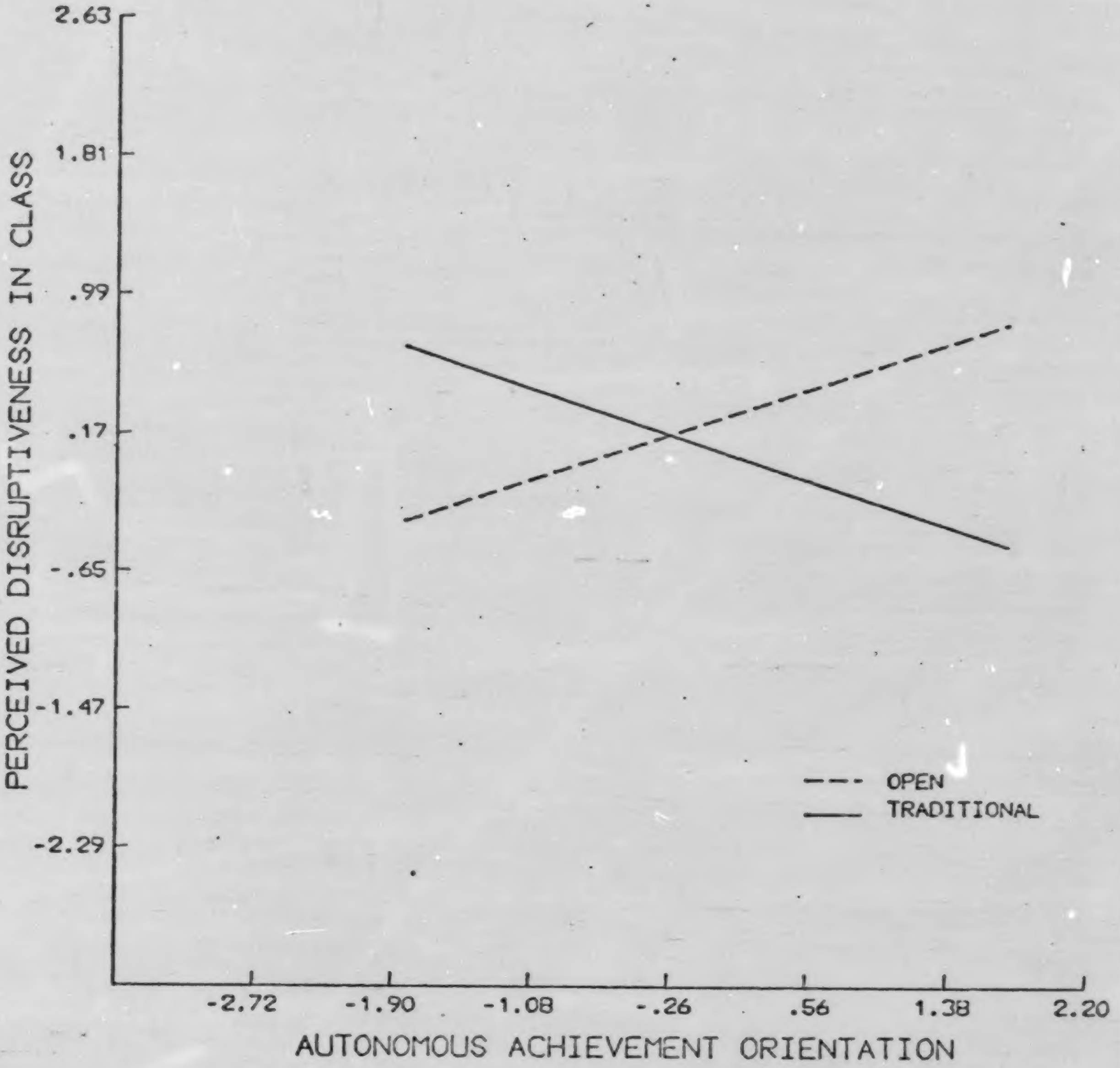


Figure 19. Joint (interaction) effect of type of class and autonomous achievement orientation on perceived disruptiveness in class, for girls

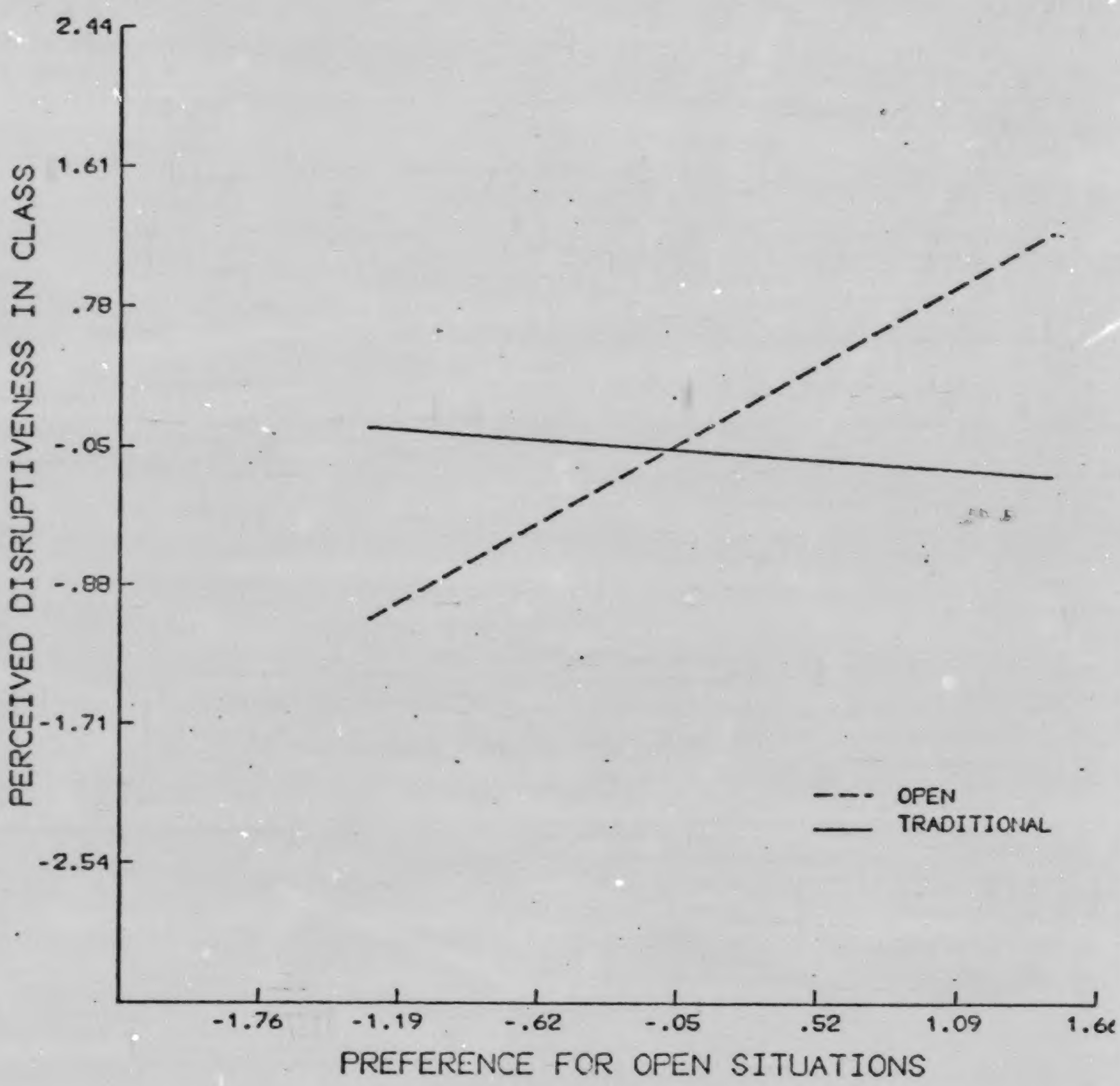


Figure 20. Joint (interaction) effect of type of class and preference for open situations on perceived disruptiveness in class, for boys

Relationships with Teacher Rating Factors

Relationships with the five factors representing teachers' ratings of students' classroom behavior are presented in Table 17.

Autonomous Intellectual Orientation. The significant regression coefficients obtained with autonomous intellectual orientation are generally consistent with expectations. The obtained relationships also show consistency of direction between the sexes. The similarity of this outcome measure to the independent variable, "autonomous achievement orientation" implied by the names is demonstrated more clearly by the positive relationships between them. Prior achievement also relates positively to autonomous intellectual orientation, while compliant, conforming orientation relates negatively, as it did with self-confidence (the correlations between autonomous intellectual orientation and self-confidence were substantial; see Table 19). Two significant interactions were also obtained with this dependent measure, one involving boys' preference for open situations (shown in Figure 21), the other involving girls' personal control orientation (shown in Figure 22). These two interactions are fairly similar; both are disordinal and show positive relationships in open classes, negative relationships in traditional classes. The open class positive slope is somewhat steeper with preference for open situations; the traditional class negative slope is steeper with personal control orientation. Boys who prefer open situations and girls who believe that they have a high degree of control are perceived by their teachers as having a stronger autonomous intellectual orientation in open than in traditional classes. Boys who do not prefer open situations and girls who do not believe they have much control are seen as having a stronger autonomous intellectual orientation in traditional classes. Boys who are in the type of situation they prefer, open or traditional, are more likely to develop an autonomous approach to learning, as perceived by their teachers.

TABLE 17

Regression Coefficients (Betas) and Multiple Rs from Multiple Regression Analyses Predicting Teacher Rating Factors

Independent Variables	Dependent Variables														
	Autonomous intellectual orientation			Democratic, cooperative behavior			Perseverant achievement behavior			Involvement in class activities			Undisciplined activity		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Prior Achievement	.35**	.21	.32**	.15		.03	.45**	.94***	.51***	-.28*		-.19	-.24		-.04
Socio-econ. status		-.08					.27	-.24*	-.02	-.01	-.22	-.11	-.03	-.37*	-.19
Type class (T) (1=op, -1=tr)			.10		.52*	.21	-.51**	.15	-.16	.40*	.47*	.38**	-.28	-.02	-.24*
Compliant, conforming orien.	-.10	-.57***	-.29**	.22			.14	.14	.10		.33*	.18			
Pers. control orientation	.25		.10			.19	-.32*						.36*	.12	.16
Autonomous ach. orient.	.20	.41**	.29**			-.09	-.28*	-.15	-.24**		.28	.20	-.39**	.32*	
Pref. for open sits.	.25			-.45**	-.23	-.20	-.11			-.19	-.34	-.15	.27*	-.51*	
T X Pr. ach.		-.19			.26		-.23		-.15					.37*	.19
T X SES			-.09				.25								
T X compl. or									-.09		.38*	.13	.15		
T X contr. or.	.21	.33*	.13		-.17		-.25	-.22							-.29**
T X auton. ach. orient.					.26	.13	-.32*	-.19	-.26**			.12	-.32*		
T X pref. for open sitns.	.35*			-.25					.20*	-.24					-.12
Multiple R	.60**	.81***	.60***	.49**	.49	.33	.74***	.83***	.66***	.41	.64*	.44*	.61**	.70**	.52***
Multiple R^2	.36	.66	.36	.24	.25	.11	.55	.69	.43	.17	.41	.20	.37	.49	.27

Note: boys N=56, girls N=36, total N=92; variables with F values <1.0 not entered into regression equation. The independent variables activity level and T X activity level were not included in these analyses.

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

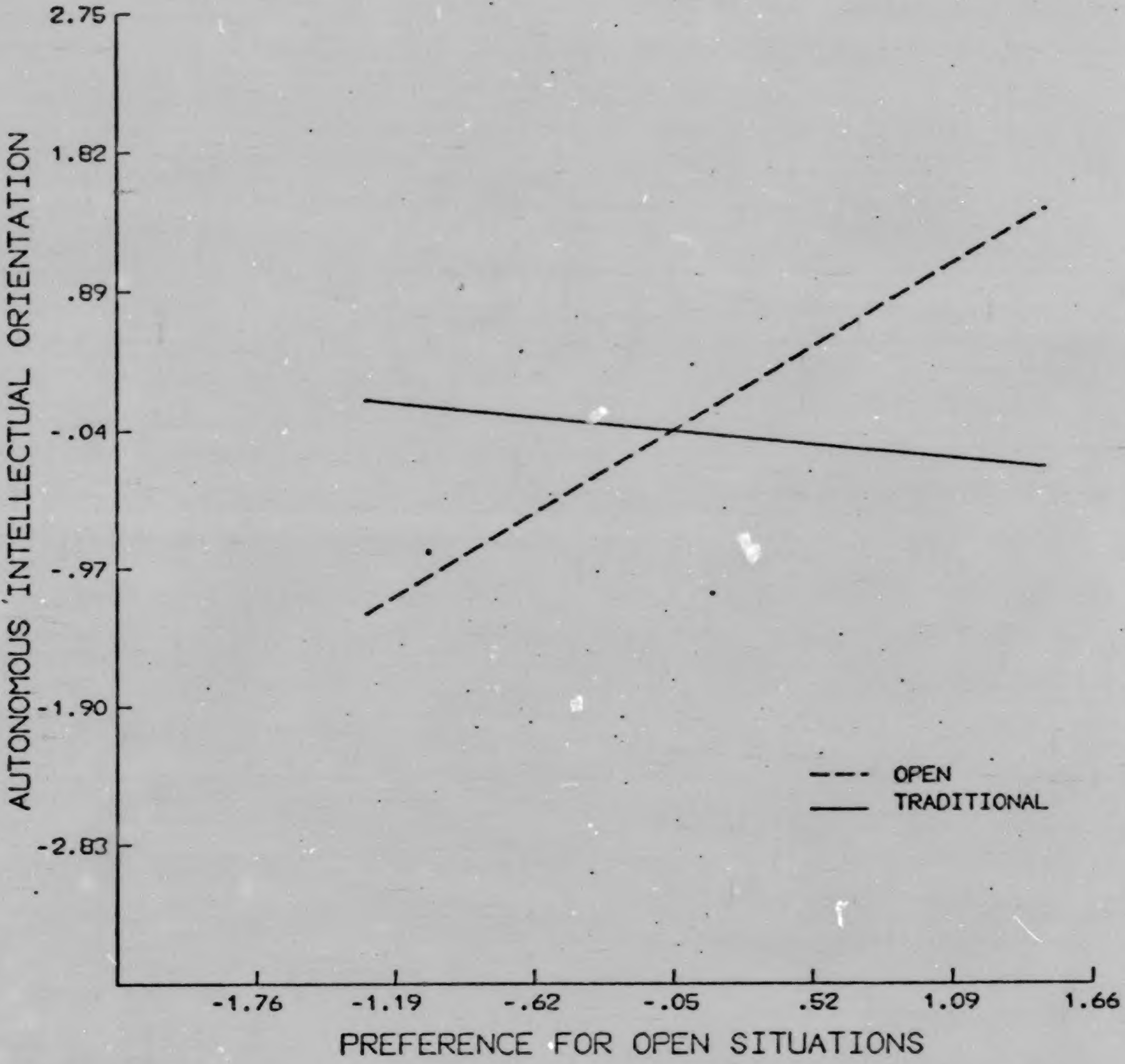


Figure 21. Joint (interaction) effect of type of class and preference for open situations on autonomous intellectual orientation, for boys

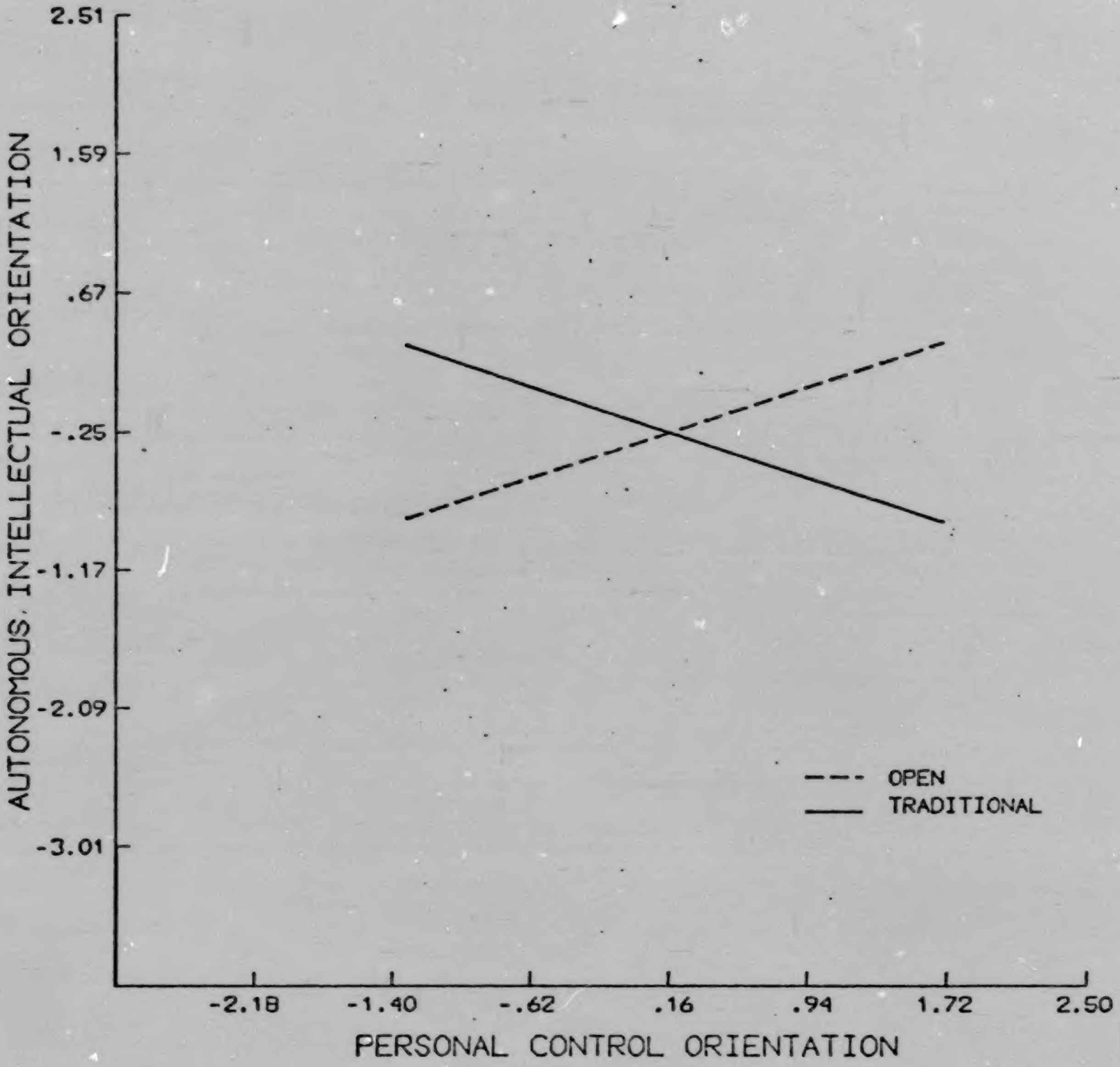


Figure 22. Joint (interaction) effect of type of class and personal control orientation on autonomous intellectual orientation, for girls

At the same time, girls who believe that they have much control are more likely to be rated as learning autonomously in the type of class which allows them more opportunity to exercise control, while those who do not believe they have much control are rated as having a stronger autonomous intellectual orientation in the type of class which allows them less control.

Democratic, Cooperative Behavior. The relationships with democratic, cooperative behavior were considerably weaker. There were only two significant main effects, no significant interactions, and only one of the three multiple correlations reached statistical significance. Democratic, cooperative behavior was seen by teachers as being more prevalent in open classes for girls. Since this measure relates to some of the central goals advocated by numerous open education adherents, the effect is not surprising. Its limitation to girls may indicate that girls, for whom cooperative behavior is generally considered more "sex appropriate" may be more receptive to influences in this direction (girls' overall scores on this measure were also higher than boys', as shown in Table 19). Preference for open situations was generally negatively related to the teacher rating of democratic, cooperative behavior, significantly so for boys. While this seems surprising at first glance, consideration of some of the other findings may help to explain it. Boys who stated a preference for open situations were also seen as being relatively undisciplined by teachers (also shown in Table 17; a similar relationship with impulsiveness/activity level can be seen in Table 19). At the same time, "impulsive" and "undisciplined" had fairly high negative loadings on the democratic, cooperative behavior factor (shown in Table 13). Boys who preferred open situations were seen by teachers as being undisciplined, a quality which the teachers in this study considered directly opposed to being "democratic" and "cooperative."

Perseverant Achievement Behavior. Perseverant achievement behavior is the most strongly predicted of the teacher rating factors. The pattern of significant regression coefficients is quite similar to that obtained with the achievement test performance factor (and, as can be seen in Table 19, these two dependent measures were very substantially correlated; children seen by teachers as being persistent workers were also those who performed well on the achievement test). The prior achievement factor related positively to perseverant achievement behavior with highly significant beta coefficients, and considerably more strongly for girls than boys (as was the case with achievement test performance). Socioeconomic status shows a weak but significant negative relationship for girls, and a positive (nonsignificant) one for boys. This is different from the finding with achievement test performance, where there was no effect for girls and a significant positive one for boys. The other significant main effects on perseverant achievement behavior all involved negative relationships--with type of class (meaning that perseverant behavior was greater in traditional classes), personal control orientation, and autonomous achievement orientation; all of these were found only for boys (although the autonomous achievement orientation effect also shows up for the total sample), and two of them also occurred with achievement test performance.

The significant interactions influencing the teacher ratings of perseverant achievement behavior are shown in Figures 23, 24, and 25. As was the case with achievement test performance, Figure 23 shows that the greater perseverance in traditional classes was produced primarily by boys who had a high level of autonomous achievement orientation, and that the negative effect of that orientation on perseverant achievement behavior (shown also for the total sample, Fig. 24) occurred only in the open classes (the effect in traditional classes, though

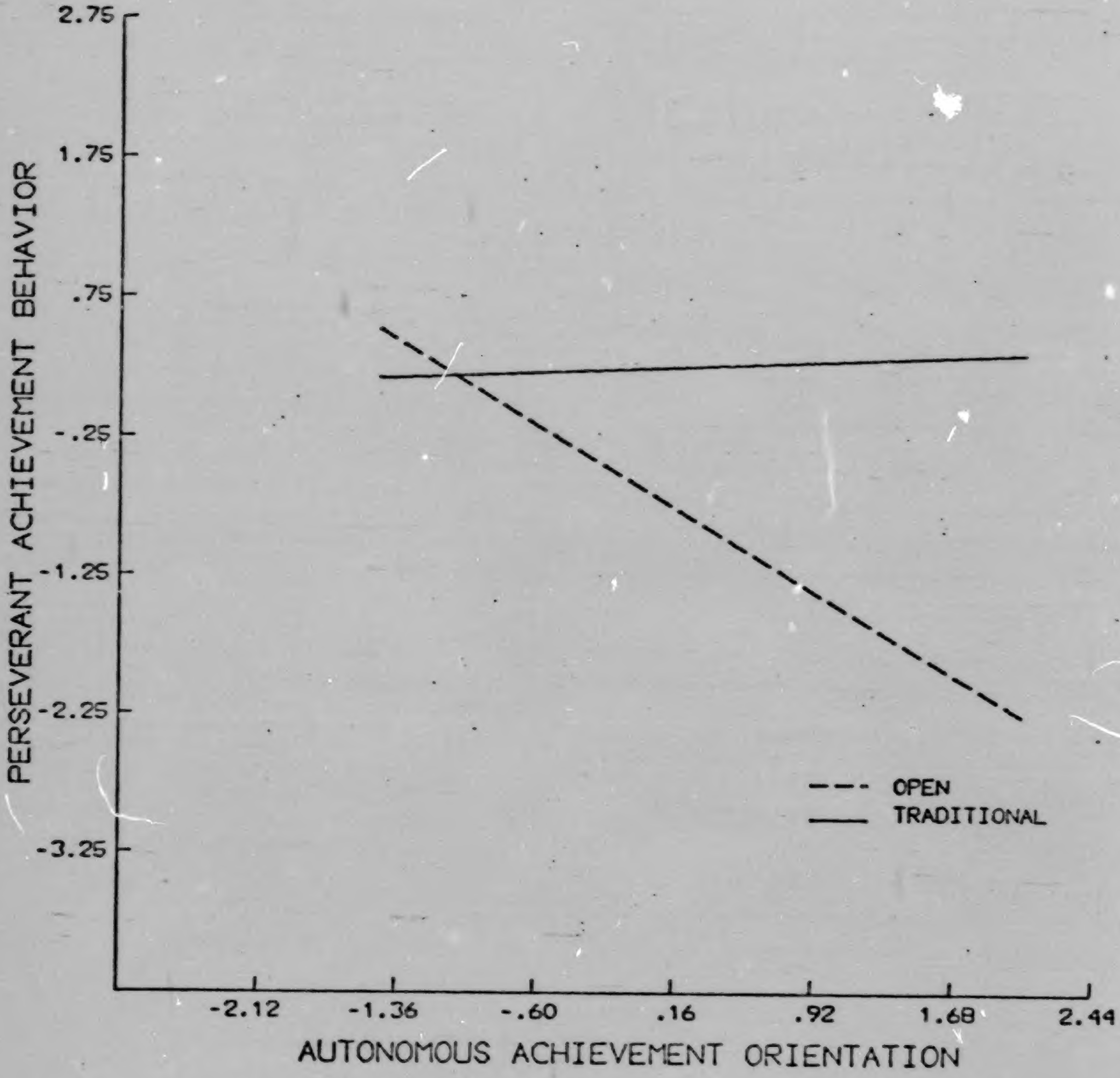


Figure 23. Joint (interaction) effect of type of class and autonomous achievement orientation on perseverant achievement behavior, for boys

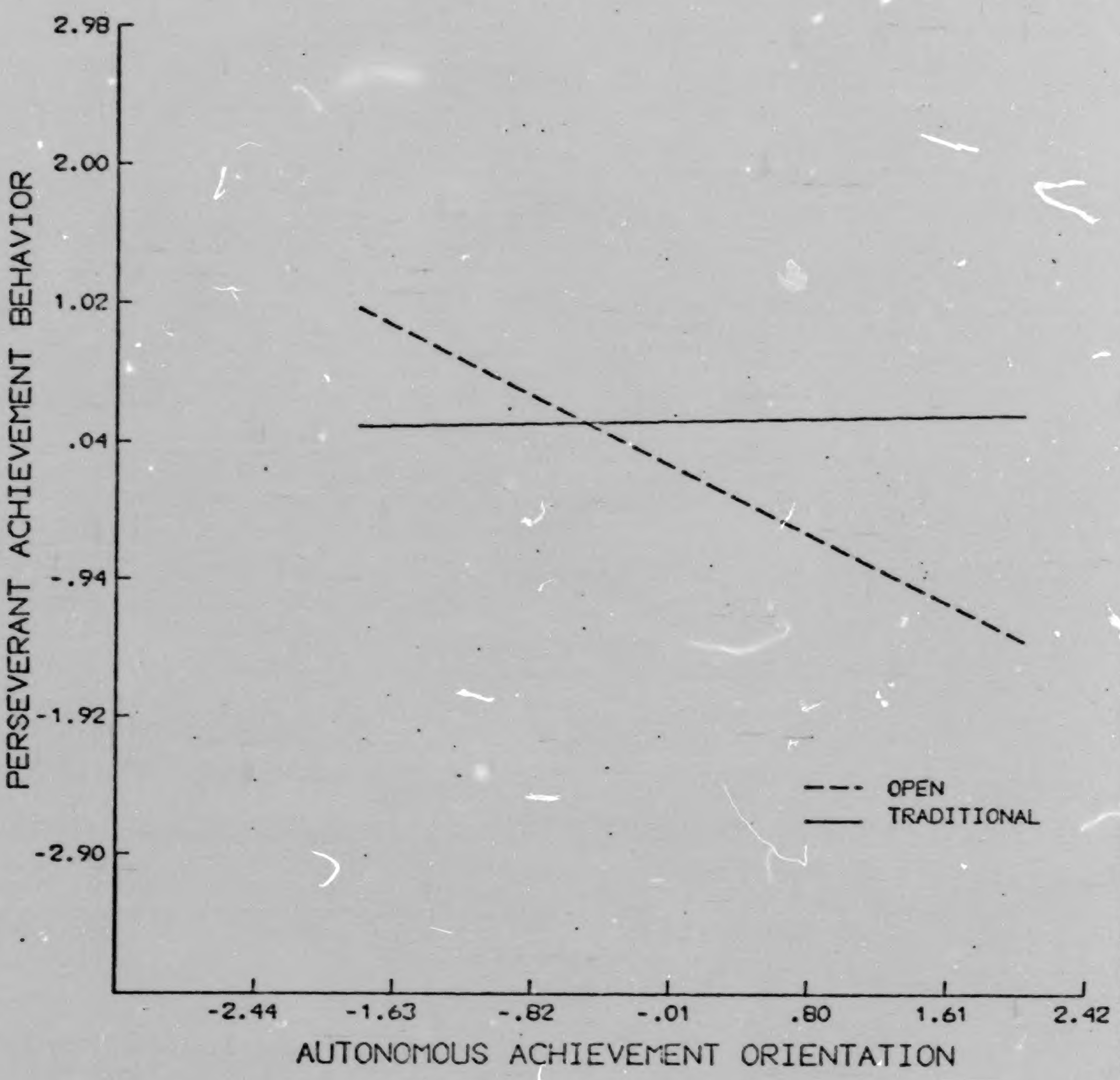


Figure 24. Joint (interaction) effect of type of class and autonomous achievement orientation on perseverant achievement behavior, for total sample

slightly positive, appeared to be negligible). It was suggested earlier that children with a strong autonomous achievement orientation may feel particularly encouraged to follow their own inclinations in open classes, and that such inclinations may not lead them to perform the kinds of activities necessary for obtaining high scores on achievement tests. The present findings are quite consistent with this explanation: children with autonomous achievement orientations tend not to display perseverant achievement behavior in open classes, as perceived by their teachers; such behavior appears to be a necessary precursor to performing well on an achievement test.

The interaction involving preference for open situations, (Fig. 25), found for the total sample, takes a form similar to that found with this measure in other instances: children who prefer open situations tend to persevere more in open classrooms, those who do not prefer open situations persevere more in traditional classrooms, as perceived by their teachers.

Involvement in Class Activities. The clearest effect on the teacher rating factor, involvement in class activities, is with type of class. Both boys and girls were rated as being more involved in the open classes. Since children in the open classes had more influence on the determination of activities, and the activities were also somewhat more varied in the open classes, perhaps a greater variety of tastes were satisfied and therefore more children became "involved" in the open classes. Of course, involvement (or "absorption") in activities is a quality which numerous informal observers have stated to be characteristic of children in open classes.

Two other significant main effects were found with this variable, a negative relationship with prior achievement for boys, and a positive one with compliant, conforming orientation for girls. Involvement in class activities also correlates positively with impulsiveness/activity level and negatively with perseverant

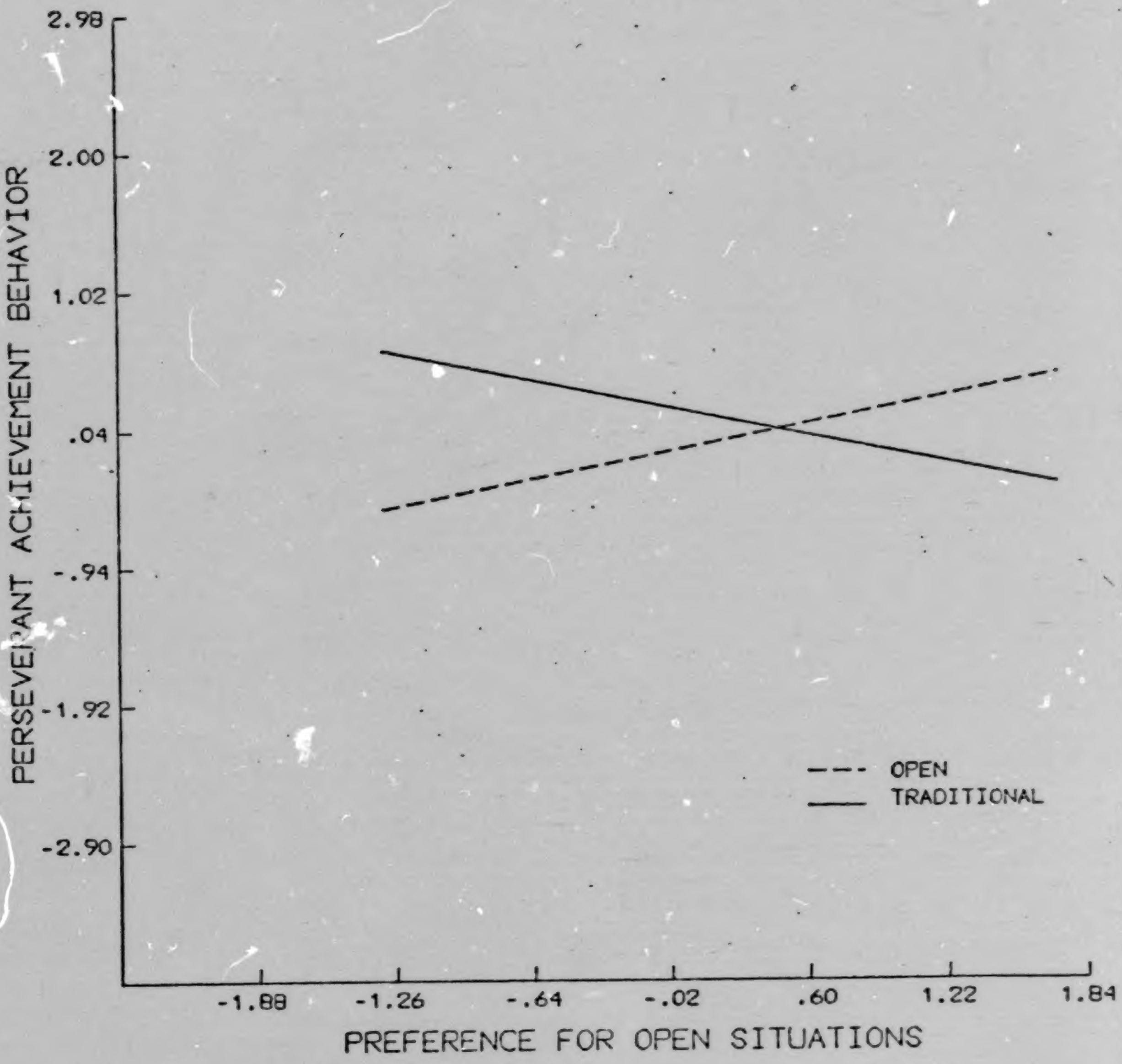


Figure 25. Joint (interaction) effect of type of class and preference for open situations on perseverant achievement behavior, for total sample

achievement behavior for boys (Table 19). Thus it may in part represent, at least for boys, an active and energetic style which is somewhat inconsistent with the tendency or ability to buckle down to routine striving tasks. Compliant, conforming orientation is also involved in an interaction with type of class to influence involvement in class activities for girls (shown in Figure 26). The positive relationship between the two variables can be seen to occur only in the open classes. The fact that the interaction effect with compliant orientation was nearly the reverse with the self-rated measure of "social involvement" (Fig. 16) makes the interpretation of this finding difficult. It may be that "involvement in class activities" is normatively approved in open classes and that compliant girls abide by the norm by becoming more involved in the activities in open classes. (Our discussion of Fig. 16 assumed that "social involvement" reflected social acceptance; here we are assuming that activity involvement relates to norm compliance in open classes. Only further research can establish whether these assumptions are compatible and the results stable).

Undisciplined Activity. The patterns of relationship with the teacher rating factor of undisciplined activity were quite different for the two sexes, with two instances of significant main effects with opposite signs for boys and girls. In the first of these, autonomous achievement orientation shows a positive relationship for girls and a negative one for boys; in the second, preference for open situations shows the opposite relationships--negative for girls and positive for boys. Boys scored significantly higher on the autonomous achievement orientation measure, overall, than did girls (Table 19). It is a characteristic which is probably more consistent with a male than a female sex-role, as defined in this culture. The teachers' perception of undisciplined activity may reflect sex-inappropriate behavior, to a degree, so that autonomous girls and nonautonomous boys are seen as being relatively "undisciplined". Preference for open situations reflects somewhat different

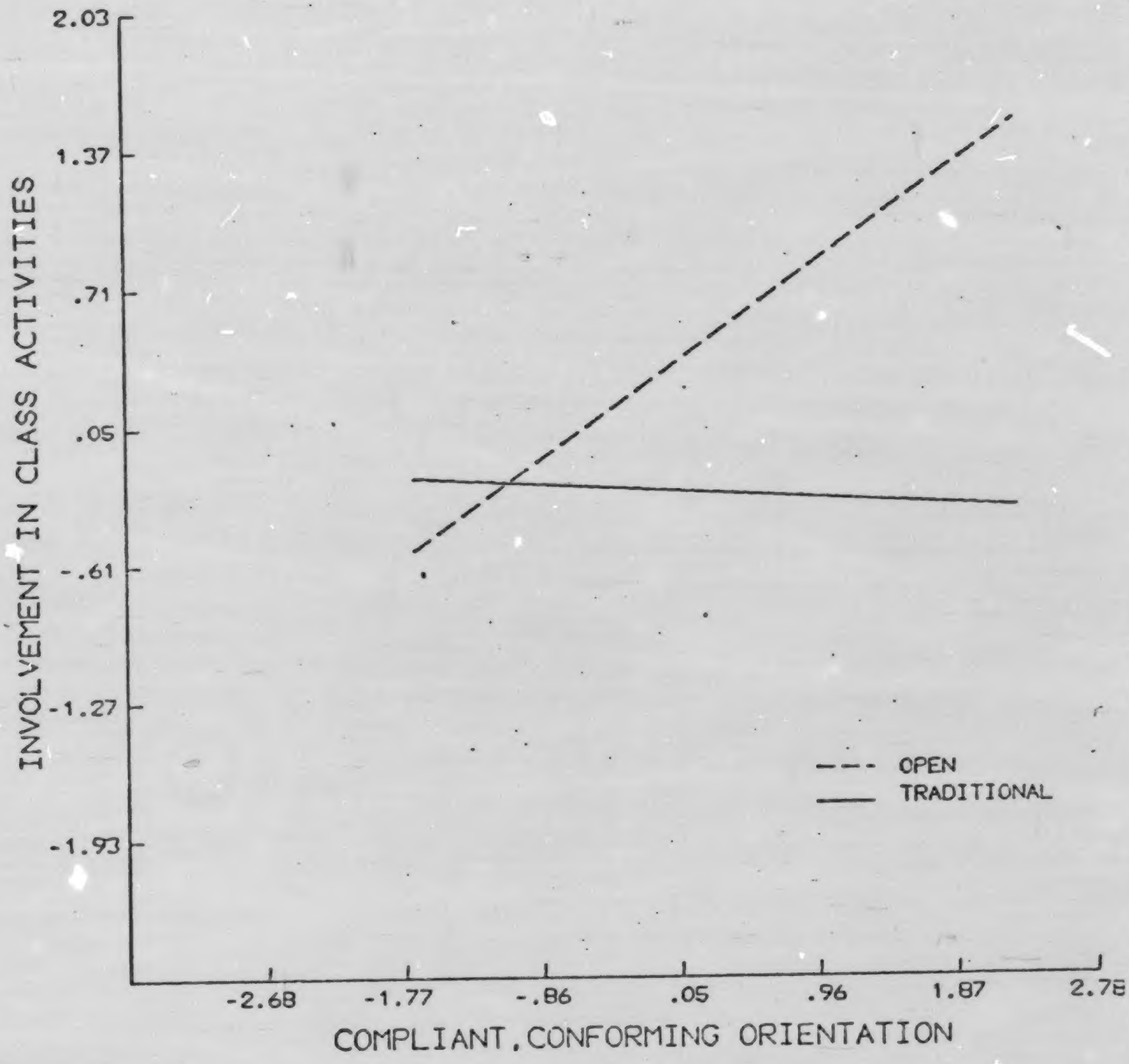


Figure 26. Joint (interaction) effect of type of class and compliant, conforming orientation on involvement in class activities, for girls

characteristics for boys and girls, as seen by some of the correlations with other variables shown in Table 19. For boys, it relates positively to impulsiveness/activity level, and negatively to inquiry skill, and democratic, cooperative behavior; for girls it relates positively to inquiry skill, creativity, perseverant achievement behavior and prior achievement, negatively to social involvement, and impulsiveness/activity level. From these correlations, it seems that girls' preference for open situations relates to the intellectual and cognitive possibilities in such situations, while for the boys (at least in this sample) it relates more to freedom and variety of movement and activity. Boys with this preference are active and impulsive, and rated as "undisciplined" by teachers, girls with it display a serious intellectual orientation and are therefore not rated as "undisciplined".

There were three other main effects with undisciplined activity. Socio-economic status shows a significant negative effect for girls, less affluent girls being seen as more undisciplined. Type of class is also significantly negatively related, with higher scores for the traditional classes (as we suggested earlier, this apparently represents a difference in the definition of the range of acceptable behaviors in the two types of class more than a difference in the absolute level of particular behaviors). The significant positive relationship between personal control orientation and undisciplined activity for boys is somewhat puzzling. Inasmuch as the control orientation measure was also negatively related to the teachers' rating of "perseverance", it may be that boys who believe in, and exert their own control, and do not persevere with prescribed classroom tasks are considered "undisciplined" by teachers.

The three significant interaction effects found with undisciplined activity are portrayed in Figures 27, 28, and 29. In Figure 27, it can be seen that the negative effect of autonomous achievement orientation for boys (which also produced

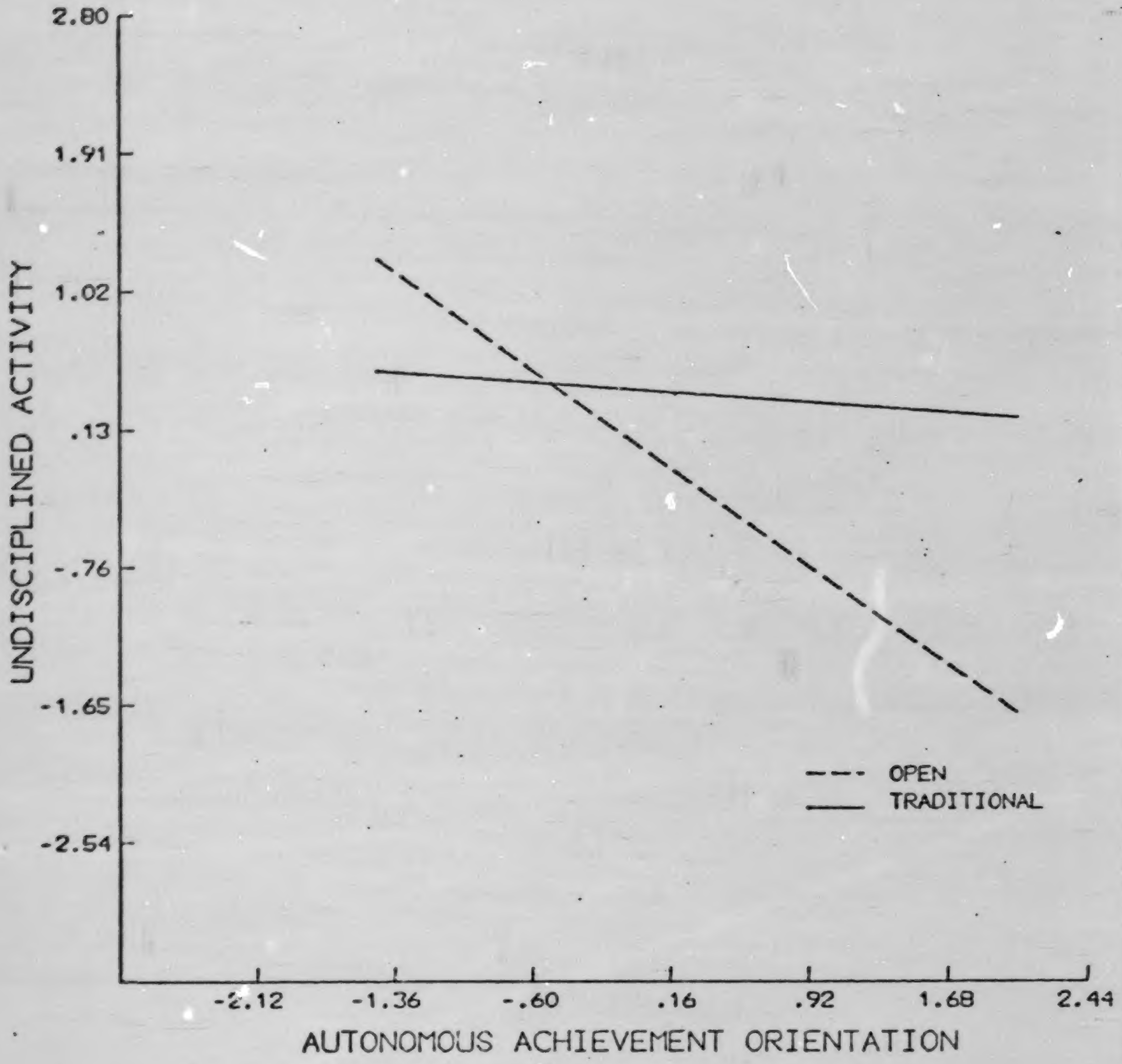


Figure 27. Joint (interaction) effect of type of class and autonomous achievement orientation on undisciplined activity, for boys

a significant main effect) was found almost exclusively in the open classes. Since, as we have said, the autonomous achievement orientation seems particularly suited to the intellectual objectives and atmosphere of the open classroom, it would be expected that those scoring high on this orientation would show less random, extraneous, or disruptive behavior in the open class.

The interaction shown between type of class and prior achievement for girls (Figure 28) is also consistent with earlier discussions, but would have been expected for boys also. Assuming that the skills and knowledge represented by the 3rd grade achievement and ability tests are more relevant to the goals and activities of the traditional than the open class, it follows that those who have higher scores on these tests would be more disciplined in traditional classes, where their skills "fit in", but that in open classes, where these are not the most relevant or recognized skills, those with high scores would perhaps feel frustrated and therefore manifest a higher level of undisciplined activity.

The last interaction, involving personal control orientation, occurs only for the total sample (Figure 29). The same variable produced a significant positive main effect for boys (although the beta coefficients for girls and the total were also positive). Here, the positive effect is found only in traditional classes; there is a slight negative effect in open classes. Personal control orientation is another characteristic which has most opportunity to be exercised in open classes; children scoring high on this orientation are perhaps relatively comfortable in open classes and frustrated in traditional ones, and thus are less "undisciplined" in open classes, while those scoring low may be frustrated in open and comfortable in traditional classes, and thus less "undisciplined" in the traditional classes.

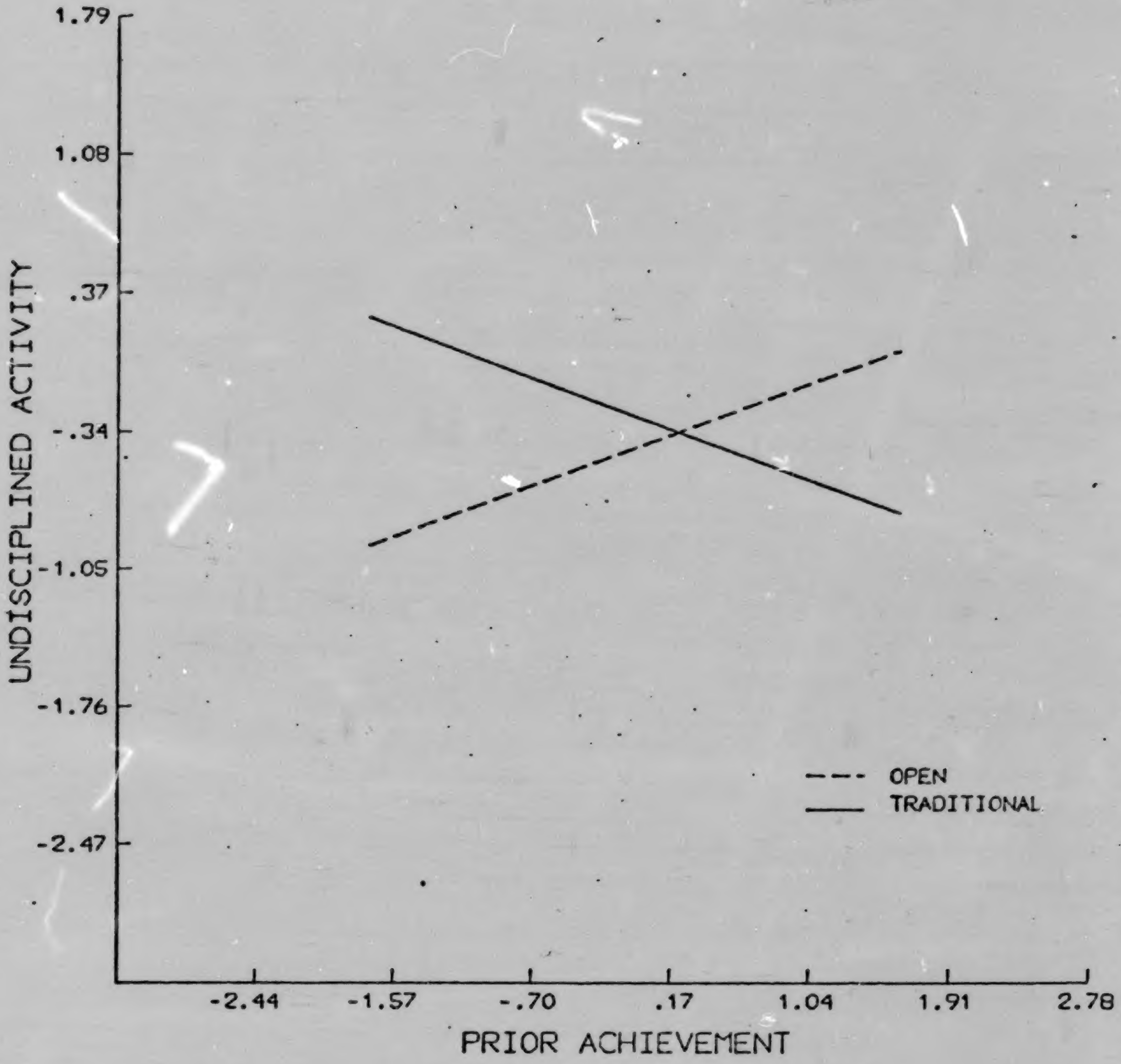


Figure 28. Joint (interaction) effect of type of class and prior achievement on undisciplined activity, for girls

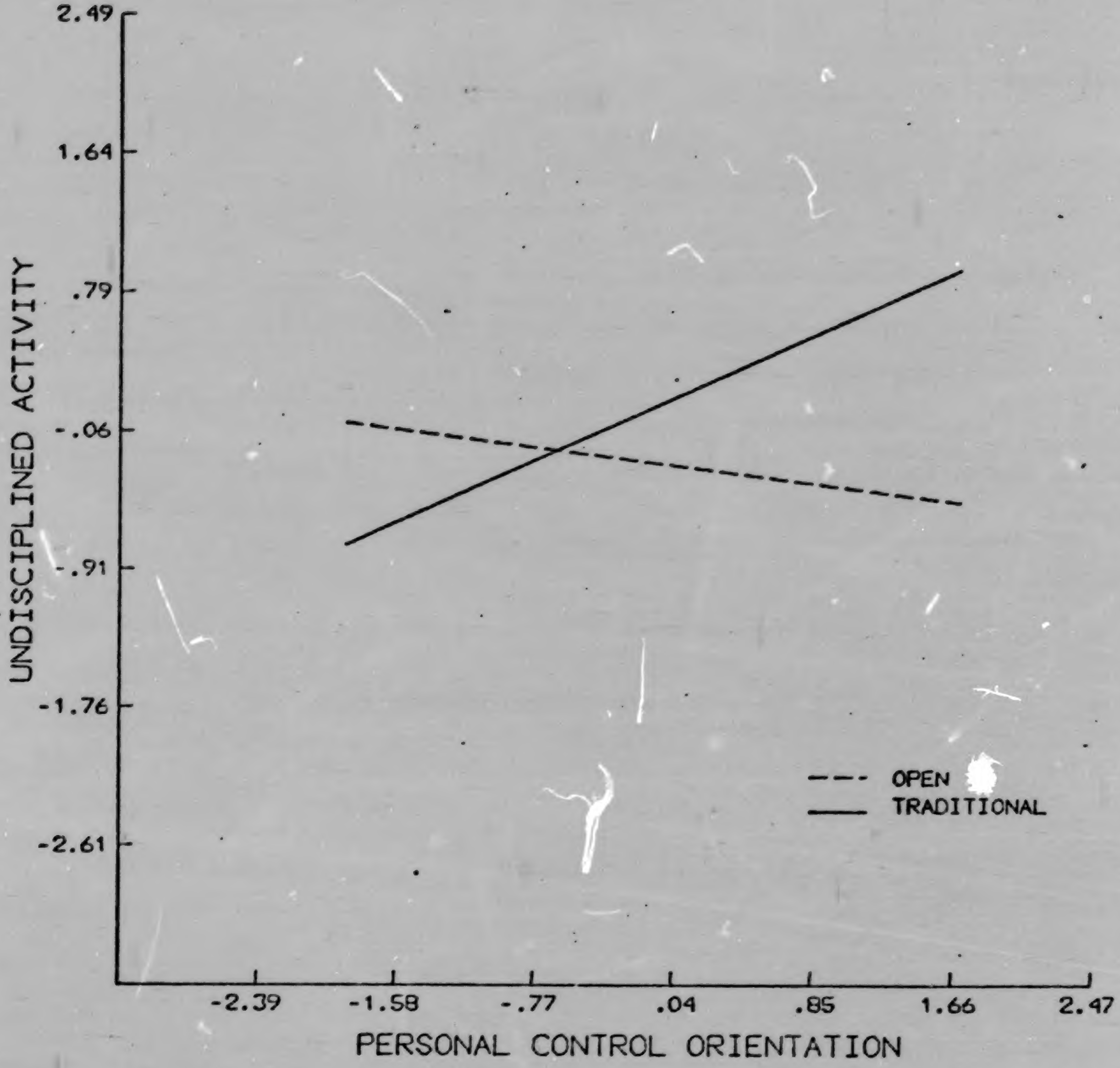


Figure 29. Joint (interaction) effect of type of class and personal control orientation on undisciplined activity, for total sample

Summary and Conclusions Concerning Relationships with Outcome Variables

The relationships with outcomes just presented are multiple and varied, and not easy to assimilate into a simple, coherent pattern. In the following paragraphs, we will review the salient findings and attempt to draw out patterns and implications where they seem plausible.

One fact which emerges rather clearly from an inspection of the regression outcome tables (14, 15, 16, and 17) is that the patterns of predictors of the various outcomes are distinctly different for boys and girls. There were only four main effects which were significant in the same direction for the two sexes, and no interactions which were. Since the sample in this study was small and the number of variables relatively large, some of the difference between sexes may reflect statistical instability rather than true sex differences. However, sex differences in predictors of achievement and achievement-related variables are found consistently (cf., Crandall, 1963; Maccoby, 1966), so it seems probable that some of the obtained differences are "true" differences.

Sex differences also appear in the degree to which the various independent variables produce primarily "main effects" or "interactions". Goldberg (1969) has suggested that one reason that few consistent interactions between personality variables and instructional variables have been found in prior research may be that the personality measures used were originally constructed to be cross-situationally general. The more accurately such measures reflect general personality traits, the less likely they would be to show interactions with situational characteristics, and the more likely to show only main effects on outcome measures. Goldberg went on to suggest that new measures would have to be developed to reflect those characteristics of individuals theoretically expected to interact with aspects of situations. The new measures developed for this study were expected to show such situational interactions, as were the existing measures selected. But examination of tables 14 through 17 reveals that the most frequent "interactors" were generally not the same for boys and girls. For boys, autonomous achievement orientation produced the most interactions (6) with type of class (while with girls it produced primarily main effects--also 6--and appeared in only one interaction). The other variables involved in multiple interactions for boys were preference for open situations (4) and socioeconomic status (3). The most frequently interacting independent variables for girls were prior achievement (3 interactions), compliant, conforming orientation (2 interactions), and personal control orientation (2).

When the outcome (dependent) measures are compared for relative receptivity to "trait" vs. "situational" influences, a greater degree of similarity is apparent between the sexes. Considering "situational" effects to include type of class main effects plus interactions with type of class, and "trait" effects to consist of main effects for any of the measures of individual characteristics, there were preponderances of "trait" effects, for both sexes, for inquiry, self-confidence, democratic attitudes, perseverant achievement behavior, and undisciplined activity; and preponderances of "situational" effects for self-direction, social involvement, and perceived disruptiveness in class. It has been suggested (Solomon, 1972, Campus, 1974) that there may be individual differences in the degree of receptivity to situational vs. trait influences on behavior. It appears that there may also be differences in the receptivity of different outcome measures to influences from these different sources.

The primary concern of the present research is with the "situational" effects, the type-of-class main effects and the interactions. There were three significant main effects with type of class for boys; their achievement test performance and perseverant achievement behavior were higher in traditional than in open classes, and they were more involved in the activities in open classes. Four such main effects were obtained for girls; those in open classes scored higher on decision-making autonomy, self-direction, democratic, cooperative behavior, and involvement in class activities. Of these measures, only involvement in class activities for boys, and democratic, cooperative behavior for girls, were not also affected by interactions.

A summary of the significant interactions obtained with each continuous independent variable is presented in Table 16.

Boys interactions

Autonomous achievement orientation participates in the largest number of significant interactions for boys. Inspection of the relevant figures reveals three patterns in these interactions. The interactions influencing achievement test performance (Fig. 2) and perseverant achievement behavior (Fig. 23) are both ordinal, and both involve a negative effect in open classes, and essentially no effect in traditional classes. Those influencing creativity (Fig. 4) and concern for others (Fig. 7) are disordinal, and show positive effects in the open classes, negative effects in the traditional. Interactions affecting perceived disruptiveness in class (Fig. 18) and undisciplined activity (Fig. 27) are negative in the open classes, and either negligible (undisciplined activity) or positive (perceived disruptiveness) in the traditional classes. As stated earlier, we assume that boys with an autonomous achievement orientation are interested in independent exploration and not in repetitive, drill-like activities. We also assume that the latter activities are important precursors of good achievement test performance and are more emphasized in traditional than in open classes, while activities more consonant with an independent, autonomous approach to learning are more emphasized in open classes. Thus, the stronger the autonomous achievement orientation of a boy in an open class, the less likely he is to show perseverant achievement behavior (since

TABLE 18

Summary of Significant Interaction Effects Obtained Between Type of Class and Each Continuous Independent Variable

Continuous Independent Variable	Dependent Variables Showing Effects, and Signs of Interaction Regression Coefficients[a]		
	Boys Sample	Girls Sample	Total Sample
Prior Achievement	Creativity (+)	Social involvement (-) Perceived disruptiveness in class (-) Undisciplined activity (+)	Social involvement (-)
Socio-economic status	Achievement test performance (+) Self-direction (+) Social involvement (-)		
Compliant, conforming orientation		Social involvement (-) Involvement in class activities (+)	
Personal control orientation		Decision-making autonomy (+) Autonomous intellectual orientation (+)	Decision-making autonomy (+) Undisciplined activity (-)
Autonomous achievement orientation	Achievement test performance (-) Creativity (+) Concern for others (+) Perceived disruptiveness in class(-) Perseverant achievement behavior (-) Undisciplined activity (-)	Perceived disruptiveness in class (+)	Perseverant achievement behavior (-)
Preference for open situations	Writing quality (+) Decision-making autonomy (+) Perceived disruptiveness in class (+) Autonomous intellectual orientation (+)		Writing quality (+) Perseverant achievement behavior (+)
Impulsiveness-Activity level		Value on self-direction (+)	

a. A positive sign indicates that the regression slope was more positive in open than in traditional classes; a negative sign, that the slope was more positive in traditional than open classes.

other options, more consistent with his predispositions are open to him) and, consequently, the less well he performs on the achievement test. In traditional classes, where options for expressing the autonomous achievement orientation are less prevalent, this orientation is unrelated to test performance and perseverance.

Since creativity is actively promoted in open classes and also seems consistent with this orientation, the relationship is again positive in open and negligible in traditional. We would presume that a concern for others is also promoted in open classes, along with the opportunity for autonomous activities, and that therefore the two are positively related in such classes, while in traditional classes, where achievement activities tend to be more competitive, an "autonomous" orientation would have a more individualistic flavor, and thus would be the antithesis of, and negatively related to, a concern for others. If boys with this orientation find more of an outlet for it in open classes, it seems reasonable that they would tend to be relatively satisfied with those classes and thus would see them as having relatively little disruptiveness, and that their teachers would rate them as showing little undisciplined activity. At the same time, boys with this orientation in traditional classes may feel frustrated and dissatisfied and therefore perceive more disruptiveness, and display more undisciplined activity than their counterparts in open classes.

Boys' preference for open situations was involved in four significant interactions, each of them disordinal, and with a more positive relationship in the open classes. These four interactions comprise three patterns: The effect on writing quality (Fig. 5) involves a distinct positive relationship in the open classes and a distinct negative one in the traditional classes. The relationships with autonomous intellectual orientation (Fig. 21) and perceived disruptiveness in class (Fig. 20) are strongly positive in open classes, weakly negative in traditional. The relationship with autonomy is strongly positive in open, and weakly positive in traditional classes (Fig. 8). Before reviewing the interpretations of these interactions, it should be recalled that boys' preference for open situations was positively related to impulsiveness/activity level (Table 19). We would assume that the aspects of open classes that appeal to boys scoring high on preference for open situations include the opportunity for autonomous activities, the somewhat greater tolerance for varied activities, and a greater freedom to move about and to talk openly. Thus, those scoring high on this preference show a greater autonomous intellectual orientation and more decision-making autonomy in open than traditional classes, while within traditional classes, where the preference perhaps becomes frustrated, scores on these measures are higher for those who do not state such a preference. The relationship with perceived disruptiveness is somewhat puzzling but may indicate that boys with a strong preference for open situations (involving a certain degree of impulsiveness) may find conflict somewhat more open and admissible in open classes. The relationship with writing quality suggests that boys' writing skills develop best in the situation in which they feel most comfortable; those who prefer open situations do the best writing in open classes, those who do not prefer open situations write better in traditional classes.

Socioeconomic status was involved in three interactions for boys, showing three distinct patterns. The relationship with achievement test performance was ordinal (Fig. 1), with higher scores in traditional classes all along the SES range, but with the difference between class types pronounced at the low SES levels, minimal at the high SES levels. The relationships with value on self-direction (Fig. 11) and social involvement (Fig. 13) appeared to be disordinal; with value on self-direction the slope was positive in open classes and negative in traditional, while with social involvement the slope was positive in traditional and negative in open classes. The first two of these interactions seem consistent with the idea that the lower SES boys may feel more comfortable in, and familiar with the orientations and activities of traditional classes. In such classes they do much better on achievement tests and are more likely to state a value on self-direction, perhaps because they feel more confident about their self-directing abilities in the setting in which they feel more comfortable. The relationship between boys' social involvement and SES is somewhat puzzling. It is possible that boys become involved with friends as a reaction to a class situation with which they feel uncomfortable and academically frustrated. Thus, lower SES boys may become more involved with friends in the open classes, and upper SES boys may become more involved in the traditional classes.

There was one other significant interaction for boys--a combined effect of type of class and prior achievement on creativity (Fig. 3), showing a disordinal interaction with a strongly positive slope for open classes, and a slightly negative (negligible) slope for traditional classes. It was suggested that high achievers may develop creativity in open classes because relevant options are presented and encouraged for promoting such talents, while in traditional classes other activities are emphasized and the skills of high achievers develop in different directions.

Girls' interactions

Prior achievement was one of the more prominent producers of girls' interactions, being involved in three. Girls with high levels of prior achievement tended to be more socially involved (Fig. 14) and less undisciplined (Fig. 28) in traditional than open classes, although they also perceived a greater amount of disruptiveness and conflict in traditional classes (Fig. 17); girls who were low prior achievers were more socially involved, less undisciplined, and perceived more disruptiveness in open than in traditional classes. We have suggested that the goals and activities of traditional classes may be most conducive to the development of the knowledge and skills tapped by achievement tests. If this is so, high prior achievers may be most frequently rewarded and most comfortable in traditional classes. High achieving girls' undisciplined activities may therefore occur less in traditional classes--and low achieving girls' in open classes--because these are the situations with which they feel most comfortable. At the same time the high achievers in traditional and low achievers in open classes perceive more disruptiveness in their classes, perhaps because the other children's conflict seems relatively greater, in contrast with their own low levels of disruptiveness. The relationship with social involvement (again greater for high achieving girls in traditional, and low achieving girls in open classes) also seems consistent with the "comfort" notion; girls are most socially involved when most comfortable in the class setting. Although this explanation is inconsistent with some of the discussions of social involvement for boys, examination of Table 19 reveals that this measure of social involvement represents some different aspects for boys and girls. It shows positive correlations with inquiry skill, involvement in class activities, enjoyment of class, and autonomous achievement orientation for girls, but not boys. It therefore seems possible that social involvement may represent an acceptance of the general academic setting and expectations for girls, but a reaction to dissatisfaction with the setting and a search for alternatives to academic involvement for boys.

There were two significant interactions involving girls' compliant conforming orientation, one affecting social involvement (Fig. 16), such that the more compliant girls were more socially involved in traditional classes, while the less compliant girls were in open classes; the other affecting involvement in class activities (Fig. 26) such that the more compliant girls were more highly involved in the open class activities, but there was little or no difference in traditional classes. The social involvement finding seems again consistent with an explanation in terms of comfort. Assuming that compliance is more required in traditional classes, girls with such an orientation may be more comfortable and therefore more socially involved in traditional classes, while the less compliant girls may be more comfortable and more socially involved in open classes. The relationship with involvement in class activities presumably indicates that such involvement is more normatively central and approved in open classes, and therefore is displayed most by girls oriented toward compliance with social norms.

Girls' personal control orientation was involved in two significant interactions. It was negatively related to autonomy in traditional classes, but essentially unrelated to it in open classes (Fig. 9); it was also negatively related to the teacher rating factor of autonomous intellectual orientation in traditional classes, and positively related to this factor in open classes (Fig. 22). Although the shape of the two interactions was somewhat different, they were similar in that in each case girls scoring high on personal control orientation scored higher on the dependent variable in open classes, while those scoring low on personal control orientation scored higher on the dependent variable in traditional classes. Since the open classes afforded more opportunity for children to exercise control over activities and outcomes than did traditional classes, and since both decision-making autonomy and autonomous intellectual orientation seem to relate logically to aspects of personal control, it follows that those with a strong control orientation should show most autonomy in the situation which allows that orientation most opportunity to be expressed, the open class. The higher scores of those with weak orientations in traditional than in open classes is somewhat more difficult to explain. It is interesting to note that these same two dependent variables were involved in similar interactions with boys' preference for open situations.

Two other significant interactions were obtained for girls: perceived disruptiveness in class was greater in open than traditional classes for girls scoring high on autonomous achievement orientation, and greater in traditional than in open classes for girls scoring low on the orientation (Fig. 19); highly impulsive and active girls valued self-direction much more in open than in traditional classes, while for those scoring low in impulsiveness/activity level, there was essentially no difference between the two types of class (Fig. 12). The first of these was the direct reverse of the interaction obtained for boys and resistant to interpretation. Concerning the second, it was suggested that active/impulsive girls may tend to initiate a relatively large number of activities, and that such self-initiated activities may be more encouraged, rewarded, and hence more valued by them in open than in traditional classes.

Two significant interactions were found for the total sample which did not occur within either sex subsample. Children tended to show more perseverant achievement behavior in the type of class which they preferred; those who stated a preference for open situations persevered more in open than traditional classes, while those who did not state such a preference persevered more in traditional classes (Fig. 25). Finally, children scoring high on personal control orientation were rated as more "undisciplined" in traditional classes (perhaps expressing frustration at being relatively unable to express that orientation directly in those classes), while those low on the orientation (being perhaps more comfortable in the traditional classes) were more undisciplined in the open classes (Fig. 29).

Virtually all of the interpretations which have been offered to account for the obtained interactions have suggested ways in which characteristics of the individual child fit in with typical orientations or activities of the different types of class. Thus, children with orientations which seemed consistent with prevalent or typical activities of one or the other type of class were seen to perform differently in the two types. This explanation was applied to boys with autonomous achievement orientations (who were more creative and concerned for others in open classes, tended not to persevere or perform well on achievement tests in open classes, and were relatively undisciplined in traditional classes), to girls with personal control orientations (who showed greater decision-making autonomy and autonomous intellectual orientation in open classes), and to highly impulsive/active girls (who were more self-directing in open classes).

Characteristics of the class situations which allowed children with particular orientations the *opportunity to express their needs* and which helped them to feel relatively *comfortable* were also invoked to help explain some of the relationships. This was applied to boys who stated preferences for open situations (and scored higher on autonomous intellectual orientation, decision-making autonomy, and writing quality in open situations), to boys of high socioeconomic status (who were more self-directing in open classes) and of low socioeconomic status (whose achievement test performance and social involvement were greater in traditional classes), to compliant girls (who were more socially involved in traditional classes), and to children in general who preferred open situations (and persevered more in open classes).

Classes which provided *activity options relevant to the development of particular skills* were also suggested to contribute to interactions (particularly to boys with high levels of prior achievement, who showed more creativity in the open classes). Finally, the possession by children of *attributes especially valued* in one or the other type of class was offered as an explanation of some interactions. This was applied to girls with high levels of prior achievement, who were more socially involved and less undisciplined in traditional than in open classes.

While many of these seem to us quite plausible explanations and all are generally consistent with the reasoning underlying the hypotheses originally proposed in this research, there are numerous instances of interactions which did not occur, but could have been equally well predicted and explained in terms of the same hypothetical processes. It should also be reiterated that the samll size of the sample and the relative unreliability of some of the measures necessitate the exercise of a good bit of caution in any attempts to interpret, generalize or apply these results. The multiple sex differences may reflect the operation of truly different processes in boys and girls; on the other hand, if the two sexes are considered to be separate subsamples, the evidence for stability, replicability, or generalizability of results may be said to be relatively small. Of course, it is well known that sex differences in achievement and achievement-related processes and characteristics are more the rule than the exception. In all probability the differences obtained in the present research represent a combination of true sex differences and statistical instability. Only additional research (some of it hopefully to be provided by the next stage of the present project) can determine which sex differences are "true" and which findings in general are stable and meaningful.

The present research does offer some evidence to show that prediction of outcomes is better when individual student characteristics are taken into account than when the comparison is simply between different types of class, overall. For boys, only one dependent variable showed a significant main effect for type of class, with no interactions. In contrast, nine dependent variables were influenced by interactions but not type of class main effects. The parallel figures for girls were one instance of a type of class main effect, with no interactions, and four instances of interactions, with no type of class main effect. There were two instances for boys, and three for girls, in which interactions and a class-type main effect occurred together, but even in these cases, the interactions provide the more detailed information about the nature of the relationships. It seems likely that much prior reserarch comparing various educational outcomes between different types of classes might have been more informative and useful if such interactions had also been investigated. The present research has produced sufficient evidence of the existence of interactions to encourage continuation of the search for maximal combinations of individual characteristics, classroom characteristics, and outcomes.

Summary of Pilot Study

This pilot study represents the first stage of a project whose general aim is to identify characteristics of children which interact with particular classroom characteristics to influence various educational outcomes. The ultimate objective is to be able to facilitate the optimal "matching" of children and classroom environments.

There were both methodological and substantive objectives for the pilot study. It was necessary to develop or adapt, pretest, and establish reliabilities for several of the instruments used in the research, including an observation system; these were then to be revised and used more extensively in the subsequent study. It was expected that the pilot study would also provide preliminary data relevant to hypotheses concerning the interaction of student and classroom characteristics. The classrooms selected for the pilot study were "open" and "traditional" classrooms, and the individual student characteristics measured were those expected to be particularly relevant to differentiating student performance in these two types of class.

In the early spring of 1973, numerous measures of individual preferences, motives, and orientations were obtained from 4th grade children in three "open" and three "traditional" classes. Later in the spring, detailed structured observations of the activities and organization of each class were made by four teams of two observers, each team making one visit to each class. Near the end of the school year, questionnaires measuring inquiry skill, creativity, several school-related attitudes and self- and class-evaluations, and the California Achievement Test were administered to the children. At the same time, teachers filled out questionnaires describing their class activities, organization and objectives, and also made a set of 30 ratings of the behaviors, orientations, skills and abilities of the children in their classes. The children were also asked to write their parents' occupations on one of the questionnaires; a crude index of socioeconomic status was later derived from this. Measures of the childrens' academic ability and performance taken a year previously, at the end of the third grade, were obtained from school records. Complete data were available on 92 children, 56 boys and 36 girls.

Comparison of the two types of class in terms of the observation and teacher description categories showed that students in the open classes had more opportunity to make choices and influence decisions about class activities, were more likely to be involved in group activities, and were more likely to cooperate with one another. There were more varied activities, more simultaneous occurrence of different activities, and more stimuli of various sorts in the open classes. Teachers in open classes spent more time consulting with students and were more permissive, while those in traditional classes spent more time lecturing, making formal presentations, and disciplining students.

The various sets of measures obtained on the individual children were factor analyzed. The following names were assigned to the factors which emerged in each set:

The third grade ability and achievement measures were included in a single factor analysis and produced a single factor, called prior achievement.

The measures of preferences, orientations, and motives were analyzed together, resulting in four factors, compliant, conforming orientation, personal control orientation, autonomous achievement orientation, and preference for open situations.

The various measures of cognitive skills and knowledge given at the end of the fourth grade were included in a factor analysis, and produced three factors: achievement test performance, inquiry skill, and creativity.

Five factors were derived from the various measures of school-related attitudes: self-confidence, democratic attitudes, concern for others, decision-making autonomy, and value on self-direction.

The self- and class-evaluation items produced three factors: enjoyment of class, social involvement (friends), and perceived disruptiveness in class.

Five factors emerged from the analysis of the teachers' ratings of the students: autonomous intellectual orientation, democratic, cooperative behavior, perseverant achievement behavior, involvement in class activities, and undisciplined activity.

The first five of the above factors, plus the index of "socioeconomic status", a derived measure of "impulsiveness/activity level", and a dichotomous categorical representation of "type of class" (open or traditional) were used as independent variables in a series of stepwise multiple regression analyses (done separately for boys, girls, and the total sample), with each of the remaining factors, plus a measure of "writing quality" as dependent variables. Prior achievement and socioeconomic status were entered first in each analysis, so that all other effects were those which occurred after these had been accounted for. Interactions were incorporated into these analyses by entering the products of the type-of-class measure (scored 1 for open, -1 for traditional) and each of the other independent variables. These product terms were the last set of variables entered into each equation, following the entry of all the independent variables.

Although there were numerous significant direct relationships between the individual characteristic and outcome measures, the primary concerns of this research have been with the interactions between individual characteristics and type-of-class, and with any overall effects of type-of-class on outcomes; only these latter two types of effects will be discussed in this summary.

The patterns of relationships with the various outcome measures were generally different for boys and girls. The measures of autonomous achievement orientation, preference for open situations, and socioeconomic status produced the largest numbers of significant interactions with type-of-class for boys, while the measures of prior achievement, compliant, conforming orientation, and personal control orientation produced the most for girls. Three significant type-of-class main effects were found for boys; those in open classes were more involved in class activities, but persevered with achievement tasks less and did less well on the 4th grade achievement tests (when performance on the 3rd grade test was accounted for) than did those in traditional classes. Girls in open classes scored higher on decision-making autonomy, self-direction, democratic cooperative behavior, and involvement in class activities than did those in traditional classes. Only two of these outcome measures were not also influenced (and therefore accounted for more completely) by interactions--involvement in class activities for boys and democratic, cooperative behavior for girls.

The obtained interactions were generally interpreted as showing ways in which individual child characteristics fit in with the orientations and activities typical of the different types of class. The autonomous achievement orientation was considered more consistent with the typical activities of open classes (involving greater exploration and self-direction). The higher boys scored on this orientation, the more likely they were to be creative and concerned for others in open classes and the less likely they were to persevere, perform well on achievement tests, or show undisciplined activity in open classes.

The personal control orientation was judged to be more appropriate to an open class situation, which allowed children greater opportunity to exert effective influence on the selection, initiation and outcomes of their own activities. Girls scoring high on this orientation showed greater decision-making autonomy and autonomous intellectual orientations in open than in traditional classes.

Children who stated preferences for open situations were expected to be more comfortable and to find more acceptable outlets for the expression of their needs in open than in traditional classes. Boys who stated such preferences scored higher on autonomous intellectual orientation, decision-making autonomy, and writing quality in open classes. Children in the total sample who scored high on preference for open situations persevered more in open classes.

The interactions obtained with socioeconomic status were also interpreted in terms of children's comfort with the different types of class. It was thought that higher-status children might feel more familiar and comfortable with the kinds of activities prevalent in open classes and that lower-status children might feel more comfortable in traditional classes. It was found that boys of high socioeconomic status were more self-directing in open classes and those of low socioeconomic status were more socially involved and performed better on the achievement test in traditional classes.

The compliant, conforming orientation was considered more consistent with the norms and expectations of traditional classes; girls scoring high on this measure were more socially involved in traditional classes.

An interaction showing that impulsive/active girls were more self-directing in open classes was attributed to a greater opportunity for girls with this orientation to express and satisfy needs in the open class situation.

A high level of prior achievement was considered possibly to represent a potential for skill development. Boys with high levels of prior achievement showed more creativity in open classes, where there were presumably more activity options relevant to the development of such skills. Prior achievement was also considered an attribute more likely to be highly valued in the traditional classes; girls with high levels of prior achievement were more socially involved and less undisciplined in traditional than in open classes.

For both boys and girls, the instances in which there were significant interactions but no significant type-of-class main effects far outweighed the few instances in which there were significant type-of-class main effects but no significant interactions. This was considered to verify the potential fruitfulness of an approach which investigates the joint effects of individual characteristics and classroom characteristics over that of an approach which is limited to investigation of the overall effects of classroom characteristics alone.

THE MAIN STUDY

In the spring of 1973, the plan for the main study data collection was presented to groups of principals and groups of teachers throughout Montgomery County. The final sample was necessarily limited to those principals and teachers who were willing to participate. With commitments made at this time, plus some rearrangements in the early fall, a sample of 50 classrooms in 26 schools was obtained.

During the summer, reliabilities and item distributions were obtained on the classroom observation system and all student questionnaire scales used in the pilot study. Scales with low reliabilities and/or poor distributions were revised and, in some cases, lengthened. Some items were omitted from the observation form, while others were added. A manual giving operational definitions of all the items in the final observation form was written, with several of the people who had used it in the pilot study participating in its development. This manual, and all the other instruments used in the main study, are presented in Appendix B.

The two teacher questionnaires--one describing the classes, the other describing individual student behaviors--were revised later in the year. Only minor changes were made in the classroom description questionnaire. Since we had only one questionnaire per class and there were no a priori scales, we could not estimate reliability for this questionnaire. Revisions were therefore based on the comments made by the teachers who had participated in the pilot study, plus the distributions of responses between classes. Some items representing elements not included in the original version of the questionnaire were also added. The "teacher views of students" rating scale was shortened considerably from the pilot study--from 30 items down to 11. Teachers had found the rating task to be lengthy and difficult in the pilot study. The directions, and the number of scale positions for each item were also changed in this questionnaire.

Because the design called for pre and post-measures of the various attitude, value, self-evaluation, creativity and inquiry skill measures (so that initial levels on these could be assessed and controlled for), two sets of these questionnaires were developed. Two additional inquiry items, parallel to the two used in the pilot study, were developed so that different items could be used in the two testing sessions. For the same reason, new creativity items were also selected from Wallach and Kogan (1965)--the two "patterns" and two "uses" items with the next highest item-total correlations (as reported in their research) after those which had already been selected for the pilot study. The various attitude (etc.) items were simply repeated for the two administration occasions; it seemed less likely for these that performance on one occasion would significantly limit performance on a second occasion some seven months later.

Aside from revisions for improving validity and reliability, the only changes made with the measures of preferences, motives, and orientations involved elimination of many items from the locus of control and social desirability scales, in order to reduce the questionnaire administration time. These were relatively long scales with good reliability, so that shortening seemed feasible. The IAR scale (locus of control) was reduced from 34 to 20 items; those selected were the 10 I+ items and 10 I- items which had obtained the highest item-total correlations in the pilot study. The social desirability scale was reduced from 48 to 24 items, retaining those which had obtained the highest item-total correlations.

The two questionnaires (F and G) measuring initial status on creativity, inquiry, and the various attitudes, values, and evaluations were given at the end of September and the first half of October, 1973, usually with a week between administrations. These were followed, after a week, with the two questionnaires (H and J) measuring the orientations, preferences, and motives, again with a week between administrations. Except for a few unavoidable exceptions, the different questionnaires given to a class were administered by the same person. Fourteen persons were involved in the questionnaire administrations, in all. During the same period a two-week series of observation-system training sessions were held; the observers studied the manual, made observations of videotapes of 5 class sessions, compared and discussed their categorizations and ratings, and the various criteria. Although a formal assessment of inter-observer agreement was not made at this point, a substantial level of agreement appeared to have been generally reached by the end of this training period.

In all, there were 8 observers, plus one alternate. Six (plus the alternate) were women; two were men. About half were graduate students in psychology or sociology; several were former teachers.

Eight observation visits were made to each class, with an average of three weeks between visits. The visits started at the end of October and continued until the end of April, 1974. Each visit was made by one observer, and each class was visited once by each of the eight observers. (The alternate filled in for four visits). The visits were scheduled at different times of day, and on varying days of the week, so as to obtain a broad sampling of class activities.

The final administrations of the two questionnaires measuring attitudes, values, self-evaluations, creativity and inquiry (K and L) took place at the very end of April and the first week-and-a-half of May (with about a week between sessions). Three final testing sessions, in the last three weeks of May, were devoted to administration of the California Achievement Test, with Reading, Mathematics, and Language each administered in separate sections. In order to shorten the testing periods, the "Problems" and "Fractions" sections were omitted from the Mathematics test, and the "Punctuation" sections from the language test. The last visits, to test children who had been absent during earlier testing visits, were finished by the end of the first week of June. These final testing and questionnaire administration visits were made by 10 persons, again with each one generally making all the visits to a particular set of classes.

Scores from the 3rd grade administrations of the Cognitive Abilities Test and the Iowa Test of Basic Skills were obtained from school records, as was information about parental occupation.

During the year, much of the data have been coded and punched as various stages of data collection have been completed. The codes for scoring inquiry and creativity were revised on the basis of reliability data from the pilot study. These new codes (shown in Appendix B) have been applied to the fall questionnaires (booklets F and G), and are currently being applied to the spring ones (K and L). Work on scoring, coding and punching the remainder of the data is now in full swing. It is expected that all coding and card punching will be completed by the end of the summer.

Project Staff

In addition to the project director and the research associate, planning, data collection, and coding services have been provided by a number of part-time research assistants. Those involved in the pilot study data collection were Nancy Allgire, Rod Fujii, David Goldstein, Henry Crabbe, Steven Koppel, Andrea Weiss, and Kathy Pearce. Kathy Pearce and Janet Chap coded the pilot study creativity and inquiry data. The classroom observers for the main study were Nancy Allgire, Henry Crabbe, Bruce Goodro, Ruth Hannon, Jennie Forehand, Margaret Geckos, Elaine Murphy, June Padrutt, and Kathy Pearce. The same people also administered the questionnaires and tests, with the addition of Sue Brennan, David Goldstein, Jim Goldstein, John Davey, and Rod Fujii (in the fall), Virginia Hodge and Pat McClure (in the spring), and Robert Walker (fall and spring). Coding of the main study data has been done so far by Ruth Hannon, Margaret Geckos, Elaine Murphy, June Padrutt, Nancy Allgire, and Kathy Pearce. Kathy Pearce also did much of the class visit scheduling (and rescheduling) and helped to coordinate and organize various phases of the research. In addition to participating in the development of instruments and planning the data collection and data analysis procedures, the major responsibility of the research associate, Arthur Kendall, has been to conduct the data analysis, using the computer facilities of both the Montgomery County Public Schools and Catholic University.

REFERENCES

Allender, J.S. The teaching of inquiry skills to elementary school children. Final report, USOE Project, Miami University, Oxford, Ohio, 1968.

Beach, L.R. Sociability and academic achievement in various types of learning situations. Journal of Educational Psychology, 1960, 51, 208-212.

Berliner, D.C. & Cahen, L.S. Trait-treatment interaction and learning. In: F.N. Kerlinger (Ed.), Review of research in education, 1. Peacock, 1973, Pp. 58-94.

Blackie, J. Inside the primary school. New York: Schocken, 1971.

Bracht, G.H. Experimental factors related to aptitude-treatment interactions. Review of Educational Research, 1970, 40, 627-645.

Bussis, A.M. & Chittenden, E.A. Analysis of an approach to open education. Princeton, N.J.: Educational Testing Service, 1970.

Calvin, A.D., Hoffman, F.K., & Harden, E.L. The effect of intelligence and social atmosphere on group problem-solving behavior. Journal of Social Psychology, 1957, 45, 61-74.

Campus, N. Transituational consistency as a dimension of personality. Journal of Personality and Social Psychology, 1974, 29, 593-600.

Cohen, J. Multiple regression as a general data analytic system. Psychological Bulletin, 1968, 70, 426-443.

Crandall, V.C. Sex differences in expectancy of intellectual and academic reinforcement. In C.P. Smith (Ed.), Achievement-related motives in children. New York: Russell Sage Foundation, 1969.

Crandall, V.C., Crandall, V.J., & Katkovsky, W. A children's social desirability questionnaire. Journal of Consulting Psychology, 1965, 29, 27-36.

Crandall, V.C., Katkovsky, W., & Crandall, V.J. Children's belief in their own control of reinforcements in intellectual-academic situations. Child Development, 1965, 36, 91-109.

Crandall, V.J. Achievement. In H.W. Stevenson (Ed.) The Sixty-second yearbook of the National Society for the Study of Education, Part I. Chicago: NSSE, 1963, Pp. 416-459.

Cronbach, L.J. & Snow, R.E. Aptitudes and instructional methods. New York: Appleton-Century, In press.

Davidson, H.H. & Greenberg, J.W. School achievers from a deprived background. New York: Assoc. Educ. Serv. Corp., 1967.

Domino, G. Interactive effects of achievement orientation and teaching style on academic achievement. Journal of Educational Psychology, 1971, 62, 427-431.

Dowaliby, F.J., & Schumer, H. Teacher-centered versus student-centered mode of college classroom instruction as related to manifest anxiety. Journal of Educational Psychology, 1973, 64, 125-132.

Featherstone, J. Schools where children learn. New York: Liveright, 1971.

Goldberg, L.R. Student personality characteristics and optimal college learning conditions. ORI Research Monograph, Vol. 9, No. 1. Oregon Research Institute, 1969.

Gordon, L.V. School environment preference schedule. Albany: State University of New York at Albany, 1968.

Gough, H. What determines the academic achievement of high school students. Journal of Educational Research, 1953, 46, 321-331.

Grimes, J.W. & Allinsmith, W. Compulsivity, anxiety, and school achievement. Merrill-Palmer Quarterly, 1961, 7, 247-271.

Guilford, J.P. Fundamental statistics in psychology and education. New York: McGraw-Hill, 1956.

Haddon, F.A. & Lytton, H. Primary education and divergent thinking abilities: Four years on. British Journal of Educational Psychology, 1971, 41, 136-147.

Haddon, F.A. & Lytton, H. Teaching approach and the development of divergent thinking abilities in primary schools. British Journal of Educational Psychology, 1968, 38, 171-180.

Haigh, G.V. & Schmidt, W. The learning of subject matter in teacher-centered and group-centered classes. Journal of Educational Psychology, 1956, 47, 295-301.

Harckham, L.D. & Erger, D.V. The effect of informal and formal British infant schools on reading achievement. Paper presented at AERA meetings, Chicago, 1972.

Harman, H.H. Modern factor analysis. Chicago: University of Chicago Press, 1960.

Hassett, J.D. & Weisberg, A. Open education: alternatives within our tradition. Englewood Cliffs: Prentice-Hall, 1972.

Hunt, D.E. Matching models in education. Toronto: The Ontario Institute for Studies in Education, 1971.

Judd, D.E. The relationship of locus of control as a personality variable to student attitude in the open school environment. Unpublished doctoral dissertation, University of Maryland, 1974.

Kerlinger, F.N. & Pedhazur, E.J. Multiple regression in behavioral research. New York: Holt, Rinehard & Winston, 1973.

Kohl, H. The open classroom. New York: Random House, 1969.

Maccoby, E. The development of sex differences. Stanford: Stanford University Press, 1966.

McKeachie, W.J. Motivation, teaching methods, and college learning. In M.R. Jones (Ed.), Current theory and research in motivation. Lincoln: University of Nebraska Press, 1961.

McKeachie, W.J. Research on teaching at the college and university level. In N.L. Gage (Ed.) Handbook of research on teaching. Chicago: Rand McNally, 1963. Pp. 1118-1172.

Medley, D.M. & Mitzel, H.E. Measuring classroom behavior by systematic observation. In N.L. Gage (Ed.) Handbook of research on teaching. Chicago: Rand McNally, 1963. Pp. 247-328.

Minuchin, P., Biber, B., Shapiro, E., & Zimiles, H. The psychological impact of school experience. New York: Basic Books, 1969.

Nie, N.H., Bent, D.H., & Hull, C.H. SPSS: Statistical package for the social sciences. New York: McGraw-Hill, 1970.

Nunnally, J.C. Psychometric theory. New York: McGraw-Hill, 1967.

Oberlander, M. & Solomon, D. The effects of multi-age multi-grade programming on students' verbal and non-verbal creative functioning. Paper presented at AERA meeting, New Orleans, 1973.

Owen, S.V., Froman, R.D., & Calchera, D.M. Effect of open education on selected cognitive and affective measures. Paper presented at AERA meeting, Chicago, 1974.

Plowden, Lady B., et al. Children and their primary schools: a report of the central advisory council for education. London: Her Majesty's Stationery Office, 1967.

Ramey, C.T. & Piper, V. Creativity in open and traditional classrooms. Child Development, 1974, 45, 557-560.

Ruedi, J. & West, C.K. Pupil self concept in an "open" school and in a "traditional" school. Psychology in the Schools, 1973, 10, 48-53.

Silberman, C.E. Crisis in the classroom. New York: Random House, 1970.

Soar, R.S., Soar, R.M., & Ragosta, M. Florida climate and control system. Observer's Manual. Gainesville: Institute for Development of Human Resources, University of Florida, 1971.

Solomon, D. The generality of children's achievement-related behavior. Journal of Genetic Psychology, 1969, 114, 109-125.

Solomon, D. Perceptions of similarity between striving tasks and the generality of task preferences. Unpublished manuscript, 1972.

Solomon, D., Ali, F.A., Kfir, D., Houlihan, K.A., & Yaeger, J. The development of democratic values and behavior among Mexican-American children. Child Development, 1972, 43, 625-638.

Solomon, D., Bezdek, W.E., & Rosenberg, L. Teaching styles and learning. Chicago: Center for the Study of Liberal Education for Adults, 1963.

Solomon, D., & Oberlander, M.I. Locus of control in the classroom. In R.H. Coop & K. White (Eds.), Psychological concepts in the classroom. New York: Harper and Row, 1974. Pp. 119-150.

Solomon, D., Parelius, R.J., & Busse, T.V. Dimensions of achievement-related behavior among lower-class Negro parents. Genetic Psychology Monographs, 1969, 79, 163-190.

Tallmadge, G.K. & Shearer, J.W. Interactive relationships among learner characteristics, types of learning, instructional methods, and subject matter variables. Journal of Educational Psychology, 1971, 62, 31-38.

Traub, R.E., Weiss, J., Fisher, C.W., & Musella, D. Closure on openness: describing and quantifying open education. Interchange, 1972, 3, 69-84.

Tuckman, B.W., Cochran, D.W., & Travers, E.J. Evaluating the open classroom. Paper presented at AERA meeting, New Orleans, 1973.

Walberg, H.J. Generalized regression models in educational research. American Educational Research Journal, 1971, 8, 71-91.

Walberg, H.J. & Thomas, S.C. Characteristics of open education: toward an operational definition. Newton, Mass.: TDR Associates, 1971.

Wallach, M.A. & Kogan, N. Modes of thinking in young children. New York: Holt, Rinehart & Winston, 1965.

Weiner, B. & Kukla, A. An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 1970, 15, 1-20.

Weiss, J. Openness and student outcomes: some results. Paper presented at AERA meeting, New Orleans, 1973.

White, K. & Howard, J.L. The relationship of achievement responsibility to instructional treatments. Journal of Experimental Education, 1970, 39, 78-82.

Williams, C.L. Effects of training on rating reliability, as estimated by ANOVA procedures, for fluency tests of creativity. Presented at meeting of National Council on Measurement in Education, New Orleans, 1973.

Wilson, F.S., Stuckey, T., & Langevin, R. Are pupils in the open plan school different? Journal of Educational Research, 1972, 66, 115-118.

Appendix A:

TABLE 19

Zero-Order Correlations Between All Variables in Regression Analyses

			Cognitive Skill Factors			School-Related Attitude Factors					T-Rating Fact.
			Inquiry Skill	Creat-ivity	Writing Quality	Self-Confid.	Democr. Atts.	Concern Others	Decision-making Autonomy	Val. on Self-dir.	Autonomous Intel. orient.
Cognitive Skill Factors	Achievement Test Performance	Boys	-.03	-.09	.54**	.38**	-.01	-.31*	-.11	.14	.35**
		Girls	-.01	-.01	.38*	.14	.19	-.11	.16	-.11	.39*
		Total	.00	.02	.52**	.33**	.09	-.15	-.05	.04	.33**
	Inquiry Skill	Boys		-.08	.42**	.00	-.09	.25	-.04	.02	.10
		Girls		.03	.33*	.30	.34*	.26	-.07	.07	.31
		Total		.01	.40**	.13	.08	.28**	-.07	.03	.16
	Creativity	Boys			.18	.00	.09	.17	.12	-.03	.27*
		Girls			-.17	.39*	.10	-.01	-.01	.06	.28
		Total			.18	.21*	.15	.21*	.02	-.02	.21*
	Writing Quality	Boys				.15	-.11	-.08	-.04	.25	.34*
		Girls				.34*	.09	.06	.02	-.16	.15
		Total				.28**	.03	.10	-.06	.08	.21*
School-Related Attitude Factors	Self-Confidence	Boys					.02	-.40**	.08	-.04	.27*
		Girls					.13	.21	.00	-.12	.42**
		Total					.09	-.08	.02	-.08	.29**
	Democratic Attitudes	Boys						-.14	.05	.02	.17
		Girls						.20	.08	-.02	.31
		Total						.04	.04	-.01	.20
	Concern for Others	Boys							.09	.09	.05
		Girls							-.13	-.15	.12
		Total							-.04	-.03	.04
	Decision-making Autonomy	Boys								.06	.23
		Girls								-.15	.34*
		Total								-.01	.28**
	Value on Self-Direction	Boys									.19
		Girls									.10
		Total									.16

TABLE 19 (Continued)

Zero-Order Correlations Between All Variables in Regression Analyses

			Teacher Rating Factors				Self and Class Eval. Factors			Personal Orientation Facts	
			Dem,coop. Behavior	Persev. Ach.Beh.	Inv.class Activs.	Undis. Activ.	Enjoymt. of class	Social Involvmt.	Percvd. Disrupt.	Compl. Orient.	Control Orient.
Cognitive Skill Factors	Achievement Test Performance	Boys	.04	.63**	-.21	.01	.05	-.08	.11	.08	.43**
		Girls	-.05	.65**	-.13	.05	.01	-.10	.13	-.19	.20
		Total	.09	.65**	-.19	-.03	.07	-.04	.14	-.02	.37**
	Inquiry Skill	Boys	.32*	.04	.08	-.01	.10	-.02	-.13	-.22	.13
		Girls	.01	.00	.19	.05	.26	.36*	.02	-.19	.15
		Total	.23*	.07	.11	-.02	.16	.15	-.06	-.21*	.15
	Creativity	Boys	.19	-.18	.29*	.10	.08	.02	-.05	-.10	-.01
		Girls	-.02	.07	.04	.06	-.22	-.15	.03	-.02	.31
		Total	.23*	.05	.18	-.02	.07	.04	-.03	-.07	.15
	Writing Quality	Boys	.25	.29*	-.01	.05	.04	-.17	.04	.02	.27*
		Girls	.07	.18	.21	.18	.47**	.19	-.32*	-.17	.33*
		Total	.29**	.35**	.04	-.02	.19	.05	-.03	-.06	.31**
School-Related Attitude Factors	Self-Confidence	Boys	-.05	.28*	-.23	.00	.21	-.14	.19	-.35**	.22
		Girls	.08	.05	-.14	.12	.28	.10	-.11	-.45**	.30
		Total	.07	.26*	-.20	-.02	.24*	.00	.10	-.39**	.26*
	Democratic Attitudes	Boys	.08	.11	.12	.10	-.27*	.28*	.04	-.14	-.13
		Girls	-.17	.15	-.09	.05	.00	-.05	.27	-.32*	.20
		Total	.06	.17	.05	.03	-.17	.19	.14	-.21*	.00
	Concern for Others	Boys	.01	-.34*	.27*	-.01	.02	.09	-.32*	-.14	-.05
		Girls	.11	-.05	.11	.31	.25	.01	.16	-.04	.08
		Total	.16	-.09	.19	.00	.13	.12	-.08	-.10	.04
	Decision-making Autonomy	Boys	-.23	-.23	-.04	-.17	-.21	.11	.13	-.43**	-.21
		Girls	-.30	-.10	.04	-.47**	-.30	-.26	.18	-.18	-.25
		Total	-.28**	-.22*	-.01	-.22*	-.24*	-.06	.13	-.32**	-.24*
	Value on Self-Direction	Boys	.02	.11	.00	.05	-.16	-.35**	-.07	-.22	-.08
		Girls	.25	-.05	-.01	-.18	-.10	.22	.19	-.02	-.33*
		Total	.08	.04	.00	-.01	-.15	-.14	.02	-.14	-.18

TABLE [illegible] (Continued)

Zero-Order Correlations Between All Variables in Regression Analyses

			Pers. Orient. Facts		Miscellaneous Indices				
			Auton. Ach. Or.	Pref. for Open sits.	Impulsiveness/ Activity Level	Prior Achievement	Socio-ec Status	Type of Class	Sex (1=M,2=F)
Cognitive Skill Factors	Achievement Test Performance	Boys	-.05	-.05	-.30*	.74**	.22	-.01	
		Girls	.04	.11	-.13	.88**	.20	.04	
		Total	-.07	.03	-.31	.79**	.21*	.03	.21*
	Inquiry Skill	Boys	-.03	-.35**	-.21	.15	.05	.00	
		Girls	.44**	.24	.14	.19	.08	-.06	
		Total	.12	-.09	-.14	.17	.06	-.01	.11
	Creativity	Boys	.11	-.03	.05	.13	.09	.15	
		Girls	.40*	.23	.12	.12	.14	.24	
		Total	.11	.10	-.11	.16	.11	.21*	.37**
	Writing Quality	Boys	-.15	-.12	-.22	.54**	.16	.13	
		Girls	.20	.19	-.07	.30	.16	.15	
		Total	-.11	.03	-.31**	.47**	.16	.17	.37**
School-Related Attitude Factors	Self-Confidence	Boys	.17	-.14	-.06	.29*	.01	-.13	
		Girls	.44**	.17	-.08	.23	.19	-.01	
		Total	.21*	.01	-.15	.29**	.08	-.06	.20
	Democratic Attitudes	Boys	.26	.10	.00	.01	-.12	.04	
		Girls	-.03	-.02	.14	.37*	.08	-.06	
		Total	.10	.06	-.04	.15	-.05	.02	.17
	Concern for Others	Boys	-.08	.13	.18	-.06	.00	.09	
		Girls	.06	-.15	.15	.05	-.08	-.09	
		Total	-.10	.02	-.01	.03	-.02	.05	.33**
	Decision-making Autonomy	Boys	.17	.25	.17	-.02	-.05	.17	
		Girls	-.04	.27	.20	.23	.32*	.33*	
		Total	.12	.25*	.22*	.05	.07	.22*	-.13
	Value on Self-Direction	Boys	-.16	-.05	.10	.15	-.10	.09	
		Girls	.11	.14	-.26	-.02	.15	.11	
		Total	-.03	.03	.01	.08	-.01	.09	-.06

TABLE 19 (Continued)

Zero-Order Correlations Between All Variables in Regression Analyses

			Teacher Rating Factors				Self & Class Eval. Factors			Pers. Orientation Factors	
			Dem,coop Behavior	Persev. Ach.Beh.	Inv.class Activs.	Undiscip. Activ.	Enjoymt. of Class	Social Involvmt.	Percvd. Disrupt.	Complnt. Orient.	Control Orient.
Teacher-Rating Factors	Autonomous Intellectual Orientation	Boys	.05	-.01	.04	.21	.01	-.01	-.04	-.20	.28*
		Girls	-.07	.07	.03	-.05	-.09	.09	.22	-.59**	.17
		Total	-.04	-.03	.04	.15	-.04	.01	.05	-.36**	.22*
	Democratic, Cooperative Behavior	Boys		-.03	.16	-.06	.27*	.02	-.18	.20	.16
		Girls		.05	-.19	.12	-.20	-.17	.08	-.19	.07
		Total		.13	.04	-.10	.20	.03	-.03	.03	.17
	Perseverant Achievement Behavior	Boys			-.31*	.13	.07	.01	.24	.07	.08
		Girls			-.14	-.03	-.07	-.03	-.15	-.15	.14
		Total			-.26*	-.02	.10	.08	.15	-.02	.13
	Involvement in Class Activities	Boys				-.05	-.08	.03	-.28*	.15	-.07
		Girls				-.10	.20	.32*	-.02	.25	.09
		Total				-.05	-.02	.12	-.19	.18	-.02
	Undisciplined Activity	Boys					-.09	.04	-.17	-.02	.19
		Girls					.33*	.30	.02	.03	.31
		Total					-.04	.06	-.14	.01	.18
Self- and Class Evaluation Factors	Enjoyment of Class	Boys						.11	.13	.14	.30*
		Girls						.44**	-.35*	.04	.01
		Total						.22*	.03	.10	.24*
	Social Involvement (Friends)	Boys							.06	.14	.01
		Girls							-.12	-.12	.00
		Total							.02	.03	.03
	Perceived Disruptiveness in Class	Boys								-.10	-.06
		Girls								-.05	-.13
		Total								-.08	-.07
Pers.Orient. Factor	Compliant, Conforming Orientation	Boys									.07
		Girls									-.12
		Total									-.01

TABLE 19 (Continued)

Zero-Order Correlations Between All Variables in Regression Analyses

			Pers. Orient. Factors		Miscellaneous Indices				
			Auton. Ach. Or.	Pref. for Open sits.	Impulsiveness/ Activity Level	Prior Achievement	Socio-ec. Status	Type of Class	Sex (1=M,2=F)
Teacher Rating Factors	Autonomous Intellectual Orientation	Boys	.25	.09	.22	.37**	.12	.16	
		Girls	.31	.06	.16	.49**	.18	.18	
		Total	.29**	.07	.22*	.39**	.14	.16	-.11
	Democratic, Cooperative Behavior	Boys	-.06	-.32*	-.66**	.13	.05	-.05	
		Girls	.05	.10	-.68**	-.04	.12	.33*	
		Total	-.11	-.11	-.72**	.12	.08	.13	.37**
	Perseverant Achievement Behavior	Boys	-.20	-.19	-.35**	.39**	-.07	-.20	
		Girls	-.08	.22	-.38*	.72**	-.07	.14	
		Total	-.23*	-.01	-.46**	.50**	-.05	-.04	.36**
	Involvement in Class Activities	Boys	.11	.03	.19	-.16	.13	.25	
		Girls	.16	-.01	.30	-.17	-.24	.19	
		Total	.13	.01	.21*	-.17	.02	.22*	-.04
	Undisciplined Activity	Boys	-.12	.12	.46**	-.15	-.21	-.33*	
		Girls	.29	-.32*	.37*	-.04	-.36*	-.30	
		Total	.09	-.06	.50**	-.14	-.25*	-.33**	-.27**
Self - class evaluation factors	Enjoyment of Class	Boys	-.05	-.18	-.28*	-.09	.10	-.14	
		Girls	.34*	-.01	.20	-.04	-.04	-.22	
		Total	.08	-.11	-.24*	-.05	.07	-.13	.17
	Social Involvement (Friends)	Boys	.19	.00	-.01	-.22	.02	-.24	
		Girls	.38*	-.24	.24	-.11	-.23	-.22	
		Total	.20	-.09	-.04	-.15	-.06	-.20	.21*
	Perceived Disruptiveness in Class	Boys	.10	.08	-.08	.08	-.10	.12	
		Girls	-.08	-.22	.16	.19	.05	-.08	
		Total	-.01	-.04	-.06	.13	-.05	.05	.13
Pers.Orient. Factors	Compliant, Conforming Orientation	Boys	-.15	.15	-.24	-.05	.18	.11	
		Girls	.04	.09	.19	-.33*	-.25	-.17	
		Total	-.06	.12	-.07	-.16	.01	-.01	-.02

TABLE 19 (Continued)

Zero-Order Correlations Between All Variables in Regression Analyses

			Pers. Orient. Factors		Miscellaneous Indices				
			Auton. Ach. Or.	Pref. for Open sits.	Impulsiveness/ Activity Level	Prior Achievement	Socio-ec. Status	Type of Class	Sex (1=M, 2=F)
Personal Orientation Factors	Personal Control Orientation	Boys	.28*	-.03	-.08	.37**	.23	-.14	
		Girls	.21	.11	.08	.09	-.13	.23	
		Total	.21*	.04	-.08	.28**	.11	.01	.12
	Autonomous Achievement Orientation	Boys		.04	.14	-.05	.12	-.08	
		Girls		.24	.19	.05	.11	.02	
		Total		.11	.25*	-.04	.10	-.07	-.25*
	Preference for Open Situations	Boys			.33*	.04	-.02	.34*	
		Girls			-.27	.24	.19	.54**	
		Total			.07	.13	.06	.43**	.06
Miscellaneous Indices	Impulsiveness/ Activity Level	Boys				-.34*	-.10	.02	
		Girls				-.16	-.26	-.33*	
		Total				-.31**	-.14	-.13	-.46**
	Prior Achievement (3rd Grade)	Boys					.16	.29*	
		Girls					.22	.09	
		Total					.18	.23*	.13
	Socio-Economic Status	Boys						.45**	
		Girls						.29	
		Total						.39**	.03
	Type of Class	Total							.11

* $p < .05$, **$p < .01$

TABLE 20

Correlations Between Orientation and Preference Scales and Related Teacher Ratings of Children

Teachers' Ratings	Orientation and Preference Scales			
	Fear of failure	Intrinsic motivation	Achievement motivation	Task pref. gen-spec.
Avoids situations of possible failure	.05	.07	-.07	.03
Works well without rewards or praise	-.11	-.02	.04	-.11
Strives to achieve	-.07	.11	.12	.04
Perseveres with tasks	-.02	.05	.10	-.10
Has strong interests in many areas	-.18	.29**	.17	.14

$^{**}p < .01$

Note: Underlined correlations can be considered indices of convergent validity.

TABLE 21

Correlations Between Social Attitude Scales and Related Teacher Ratings of Children

Teachers' Ratings	Social Attitude Scales										
	Compromise	Assertion	Equality of rep.	Equality of part	Dem. Vals.	Coop. Compet.	Self-directing	Autonomy	Heterogen.	Con Oths.	Self Esteem
Willing to compromise	.08	.02	.08	.10	.12	.25*	.06	-.14	.10	.09	.21*
Gives opinion, even if unpopular	.04	.17	.08	.12	.17	-.11	.17	.19	.26*	-.05	.13
Respects others' rights	.12	.17	.12	.10	.21*	.20	-.06	-.16	.07	.05	.17
Cooperative, helpful	.09	.11	.10	.10	.16	.20	.05	-.10	.06	.07	.10
Competitive	-.04	.03	.12	.07	.08	.06	.14	.05	-.01	-.01	.30**
Likes to initiate own tasks	.14	.23*	.13	.12	.25*	.02	.05	.16	.13	.10	.12
Sets problems for self, experiments	.16	.17	.17	.17	.27**	-.07	.04	.09	.13	.09	.25*
Tolerant of differences	.14	.15	.13	.12	.22*	.15	-.02	-.06	.14	.11	.18
Concerned with welfare of others	.11	.12	.13	.10	.19	.20	.06	-.04	.12	.14	.11
Good self-image	.07	.21*	.09	.13	.21*	.09	.09	-.12	.16	.06	.36**

$^*p < .05$

$^{**}p < .01$

Note: Underlined correlations can be considered indices of convergent validity.

TABLE 22

Correlations Between Creativity and Inquiry Indices

and Related Teacher Ratings of Children

Creativity and Inquiry Indices	Teachers' Ratings		
	Creative verbally	Creative in use of materials	Skilled at problem-solving, inquiry
Total appropriate responses, Uses	.32**	.22*	.29**
Total uncommon responses, Uses	.28**	.18	.24*
Total appropriate responses, Patterns	.16	.07	.13
Total uncommon responses, Patterns	.15	.03	.12
Total informative responses, Inquiry	.19	.17	.30**
Total indirect responses, Inquiry	.19	.19	.30**
Total high-inference responses, Inquiry	.21*	.24*	.38**
Total site-extended responses, Inquiry	.15	.04	.18
Completeness, Inquiry	.20	.19	.34**

* $p < .05$

** $p < .01$

APPENDIX B

Instruments Used in Main Study

With the exception of the California Achievement Test, all instruments used in the main study are included in this section. Among these are the six questionnaires given to the children (booklets F, G, H, J, K and L), plus the "School Environment Preference Schedule" (measuring "bureaucratic orientation"), the two questionnaires given to the teachers, ("Teacher Views of Students" and "Teacher Description of Classroom Activities"), and the observer's form and manual for the classroom observation system. The codes and coding definitions used in scoring the inquiry and creativity items from booklets F, G, K, and L are also included.

Following is a list of the characteristics measured in the childrens' questionnaires, and the location of each.

Inquiry skill - Booklets F, G, K and L, page 1 of each.

Writing quality - Assessed from inquiry items, listed above.

Creativity: Uses - Booklets F and K, Pp. 10-11.

Creativity: Patterns - Booklet G, Pp. 9-10, Booklet L, Pp. 11-12.

Task self-direction - Booklets F and K, Pp. 2-3, items 1-6.

Democratic attitudes: assertion - Booklets F and K, items 7, 9, 13, 20.

Democratic attitudes: equality of representation - Booklets F and K, items 8, 12, 18, and 21.

Democratic attitudes: equality of participation - Booklets F and K, items 10, 14, 15, and 17.

Democratic attitudes: compromise - Booklets F and K, items 11, 16, 19, and 22.

Value on group activities - Booklets F and K, items 23-34.

Cooperation vs. competition - Booklets F and K, items 35-43.

Decision-making autonomy - Booklets G and L, Pp. 2-3, items 1-10.

Tolerance for differences - Booklets G and L, Pp. 3-4, items 11-14.

Concern for others - Booklets G and L, Pp. 4-5, items 15-23.

Self-esteem - Booklet G, P. 6, items 1-12, Booklet L, P. 8, items 1-12.

Self- and Class-evaluations - Booklet L, Pp. 6-7, items 1-8.

Personal expression vs. structured role orientation - Booklet H, P. 2-3, items 1-12.

Fear of failure - Booklet H, P. 3-4, items 13-22.

Intrinsic motivation - Booklet H, Pp. 4-6, items 1-12.

Class characteristics preferences - Booklet H, Pp. 6-10, items 1-26.

Intellectual achievement responsibility - Booklet H, Pp. 11-13.

Locus of instigation - Booklet J, Pp. 1-4, items 1-15.

Achievement motivation - Booklet J, Pp. 4-7, items 1-20.

Task preference generality-specificity - Booklet J, Pp. 7-11, items 1-12.

Social desirability - Booklet J, Pp. 11-12, items 1-24.

Codes for Inquiry and Creativity Items, Main Study

Inquiry Skill

The following coding categories were applied to each of the four inquiry items (found on the first pages of booklets F, G, K, and L)--the bridge, the ghost town, the playground, and the disarranged room.

1 - Number of appropriate, non-repeated, informative responses (responses which constitute approaches to solutions; non-attempts and direct statements of solutions or answers are scored zero)

2 - Number of site-extended responses (responses which relevantly range beyond the specific geographic context, which seek information from beyond or outside the site)

3 - Completeness - a rating of the degree to which the total approach seems to include all necessary areas so that a good decision or solution can be reached.

0 - No attempt or inappropriate
1 - Very incomplete, minimal appropriate response
2 - Incomplete, but more than minimal
3 - Approaching completeness
4 - Enough relevant areas included so that a rational decision can be made

4 - Writing quality - A rating of the effectiveness of the communication; including clarity, expressiveness, coherence of statement, in the judgment.

Creativity

These categories were applied to the four "uses" items (found on the last pages of booklets F and K) and the four "patterns" items (found on the last pages of booklets G and L). It will be noted that the cutoff point for "uncommon" responses is 10% for the Uses items and 1.5% for the Patterns items. These points were found to give similar, and relatively unskewed, distributions in the pilot study for the different types of items. The determination of which responses were "common" and which "uncommon" was taken from the pilot study calculations, for the four items which were repeated from that study. In order to determine the cutoff points for the four items which we had not used previously, a subsample of seven classes was randomly selected from the total of 50. Within this subsample (comprising about 190 children; about 13% of the total sample, and similar to the total number of children who had been involved in the pilot study), all the creativity responses were recorded, and the number of children giving each response determined. Lists were then made of the "common" and "uncommon" responses for each item as found in the subsample, and were later applied to the creativity scoring for the total sample. The following coding categories were used:

1 - Number of appropriate, non-repeated responses

2 - Number of uncommon responses (given by 10% of subsample, or less, for uses items; by 1.5% or less, for patterns items)

3 - Elaboration - A rating of the degree to which responses are detailed and spelled out, specifically described, embellished.

   0 - No attempt or inappropriate
   1 - No elaboration on any response
   2 - Slight elaboration
   3 - Moderate elaboration
   4 - Much elaboration

4. Imaginativeness - A rating of the degree to which the responses evidence the play of imagination; responses which deviate from ordinary uses of and settings (for "uses" items), but yet are functional or possible, and those which involve shifts of perspective or scale (e.g., viewing "patterns" objects rotated, upsidedown, from above or underneath), would be among indices of this quality.

   0 - No attempt or inappropriate
   1 - Very little imaginativeness
   2 - Slight imaginativeness
   3 - Moderate imaginativeness
   4 - Much imaginativeness

BOOKLET F

Name ______________________________

School ______________________________

Grade ______________________________

Teacher ______________________________

Your age ______________________________

Your sex (circle one) boy girl

A Problem

Pretend you are an engineer trying to decide on the best place to build a bridge across a river. What would you do to help you decide? Write down the things you would do to help you decide.

Agree or Disagree?

Read each statement and then circle the number that tells how much you agree or disagree with it.

1. If you are puzzled about something, it is always better to try to find the answer for yourself than to have someone tell it to you.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

2. When you want to make something, it is best to start with some help or advice from a teacher.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

3. When you want to find out more about something, you should just go to the library and see what you can dig up, without getting help.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

4. If you want to fix a broken toy, you should ask for help right away so you won't waste a lot of time on it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

5. When you're working on a project, you should often get help and advice from the teacher, so you won't make a lot of mistakes.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

6. The best way to learn about how a camera works is to try to build one yourself, without any help.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

7. Four kids are making up some rules for a new game. Three of them agree on a rule; the fourth one doesn't like it. Since the others agree, he should not say anything about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

8. Kids who get in trouble on one class trip should not be allowed to vote on where to go for the next trip.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

9. Your work group is planning the next science project. Before you get to say what you would like, everyone else has said they want to study volcanoes. You should not bother to say what you would like to do.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

10. When kids are playing a game against another team, the worst players should get to play as much as anyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

11. When you have an opinion, you should stick to it even if everyone says you're wrong.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

12. When the kids in a class at school are voting on something, the kids who are always making noise should not be allowed to vote.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

13. Some kids are trying to make up a play for a school assembly. One of them has thought of something, but is sure the other kids won't like it. He should keep quiet about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

14. It spoils the fun to let people who don't know the rules play games.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

15. Kids who get in trouble on one trip should not get to go on the next trip.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16. Two friends are trying to decide what to do on a Saturday afternoon. One thinks they should go to a movie; the other thinks they should go to the park.

Each should just do what he wants to by himself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16a. If you disagreed in Number 16, write in what you think they should do.

____

2

17. When kids are playing games, the ones who don't know how to play should get to play as much as anyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

18. New members should be in a club for a while before they get to vote on things.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

19. When two people argue about something, one of them is right and one is wrong.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

20. Your family is planning an outing. You already know that everyone else except you wants to go to a museum. You should not say what you want to do.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

21. The best students in a class should be the ones to decide which new project the class should start.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22. Two friends are playing "Wizard of Oz" and both want to be the scarecrow.

The one who thought up the game should get to be the scarecrow.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22a. If you disagreed in No. 22, write in what you think they should do.

____

23. You learn more by working on projects with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

24. Kids get more interested in a project when they work in a group than when they work by themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

25. Group projects get so mixed up that often the best ideas don't get used.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

26. It is more fun to work on projects by yourself than with groups of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

27. When kids are working on group projects, a few people always end up doing all the work.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

28. You learn more by doing scientific experiments by yourself than with groups of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

29. People in group projects have a very good time working together.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

30. It is more fun to work on math problems with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

31. There is so much argument in group projects that nothing ever gets done.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

32. It is more fun to do scientific experiments with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

33. You learn more by working on math problems by yourself than with a group of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

34. Group project results are always good because the best ideas are used.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

35. Classes are best when everyone tries to do better work than everyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

36. School is nice only if everybody shares everything.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

37. It is better for a bunch of kids to work together painting one big picture than for each kid to try to paint the best picture.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

38. You learn more when you try to do better than other kids in school than when you try to help other kids in school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

39. It is better to give prizes to kids who do the best work than to give them to a whole class for doing a good job working together.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

40. Kids can make up a better story working by themselves than by working together and helping each other.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

41. It is more fun to play games if you're trying to win instead of just fooling around.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

42. You learn spelling words better when there is going to be a spelling contest.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

43. Games are most fun when you play any old way and don't care whether you win or lose.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

Uses Game

This is an imagination game. In this game, we'll name an object and ask you to write down lots of different ways that it could be used. For example, if the object is **string**, you might say that it could be used to hold up pants, tie packages, attach a fish hook, jump rope, sew with, hang clothes, pull shades, and a lot of other things. Alright, here is the first one. Take as much time as you want.

Write down all the different ways you could use a **chair**.

Now here is another one. Write down all the different ways you could use a **button** (from a coat).

BOOKLET G

Name ____________________

School ____________________

Grade ____________________

Teacher ____________________

Your age ____________________

Your sex (circle one) boy girl

A Mystery

You are hiking with some friends and come across a "ghost town." How could you find out why no-one lives there any more? Write down the things you could do to find out.

Agree or Disagree?

Read each statement and then circle the number that tells how much you agree or disagree with it.

1. Each kid should decide for himself what he needs to learn.
   - 1 strongly disagree
   - 2 disagree
   - 3 agree
   - 4 strongly agree

2. Parents should be the ones to decide what time kids should go to bed.
   - 1 strongly disagree
   - 2 disagree
   - 3 agree
   - 4 strongly agree

3. Teachers should be the ones to decide what the classroom rules should be.
   - 1 strongly disagree
   - 2 disagree
   - 3 agree
   - 4 strongly agree

4. Teachers should be the ones to decide how good a kid's work is.
   - 1 strongly disagree
   - 2 disagree
   - 3 agree
   - 4 strongly agree

5. Kids should be the ones to decide if they need to do homework.
   - 1 strongly disagree
   - 2 disagree
   - 3 agree
   - 4 strongly agree

6. Kids should be the ones to decide where they should sit in class.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

7. Teachers should be the ones to decide what kids should work on in school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

8. Parents should be the ones to decide what kids should wear to school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

9. Kids should be the ones to decide what time to come in at night.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

10. Kids should be the ones to decide when to start on a new project.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

11. The best kind of neighborhood to live in is one with people who are the same in their hobbies, jobs, and interests.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

12. Only kids who have the same ideas and interests can be good friends.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

13. If a new kid came to school who talked and dressed differently from the others, it would be best for him to try to be more like everyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

14. Classes are best when most of the kids have the same likes and interests.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

15. A kid has enough schoolwork of his own to look after without worrying about other kids'.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16. People should look after themselves and not butt into other people's problems.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

17. It is important for you to help a kid who keeps doing bad things.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

18. Kids who have trouble with schoolwork should work it out by themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

19. We should take care of ourselves and let others take care of themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

20. It is important for you to take extra time to help kids who don't understand something.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

21. It would be a big waste of time if you jumped to help people whenever they had problems.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22. When people don't have many friends, it is up to **them** to do something about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

23. Everybody has enough problems of their own without worrying about other people's.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

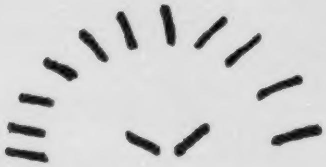
Here are some words that tell different ways kids are. Please read each one and circle the number that tells how often you think you are that way; either **always, most of the time, about half the time, hardly ever**, or **never.**

I THINK I AM:

1. able to get along with other kids	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
2. not able to figure things out in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
3. scared to take chances	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
4. a good worker in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
5. happy with myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
6. not as smart as other kids in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
7. trying my best in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
8. not the way I would like to be	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
9. sure of myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
10. doing poorly in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
11. angry with myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
12. doing a good job in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never

Pattern Game

Here's a game where you can really feel free to use your imagination. We'll show you some drawings. Your job is to look at them and then write down all the things you think each drawing could be. Here is an example:

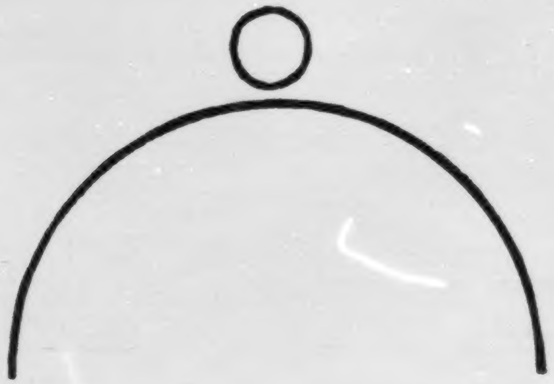


After looking at this, you might say that it could be the rising sun, a porcupine, eye lashes, a brush, a carnation, and probably a lot of other things.

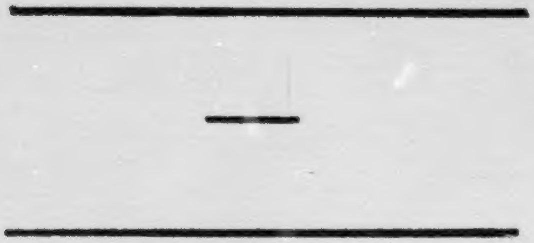
Alright, the first one is on the next page. Take as much time as you want.

7/8

Write down all the things you think this could be.



Now here is another one. Write down all the things you think this could be.



BOOKLET H

Name ____________________________________

School ____________________________________

Grade ____________________________________

Teacher ____________________________________

Your age ____________________________________

Your sex (circle one) boy girl

Which would you rather do?

Instructions:

Each of these questions describes two activities. Please pick the one you would **usually like doing better** and circle the letter in front of that one. Please don't skip any, even if it is a hard choice to make.

I would rather:

1. a. play in a game where everyone knows the rules.

   b. make up a new game.

2. a. be in a place where I know exactly what I am supposed to do.

   b. be in a place where I pick what I want to do.

3. a. talk with a friend about how I feel about things.

   b. talk with a friend about a project we're working on together.

4. a. follow plans in building a model from a kit.

   b. design and build something from scraps of wood.

5. a. go to a party where almost nothing is planned beforehand.

   b. go to a party where things are all planned beforehand.

6. a. work when I want to.

   b. work when I'm supposed to.

7. a. help out at home when I think it would be useful.

   b. have certain chores to do every day.

8. a. write a story about a subject the teacher picks.

   b. write a story about a subject I pick.

9. a. be in a club where adult leaders plan the activities for the kids.

   b. be in a club where the kids who belong plan the activities.

10. a. think out the best way to do something, and work hard to do it.

    b. know the rules for doing something, and work hard to follow them.

11. a. follow a time plan, so I know what I'll be doing at different times.

    b. do things as they come, with no time plan.

12. a. be in a group where members choose the jobs they do.

    b. be in a group where members are told what jobs to do.

13. a. play checkers against someone a little better than I am.

    b. play checkers against someone a little worse than I am.

14. a. work a puzzle I know I can do.

    b. work a hard puzzle I've never done before.

15. a. keep working on a math problem I haven't been able to solve.

    b. stop working on a math problem that is too hard, and find an easier one.

16. a. try to do a job that's very hard.

    b. try to do a job that's fairly hard.

17. a. get a model to build like one I did a good job on last time.

    b. get a model to build like one I messed up last time.

18. a. let my friends hear me play an instrument that I've just started learning.

    b. practice by myself until I'm good enough to let others hear me play.

19. a. get hints to help me solve a hard problem.

    b. try to solve a hard problem without any hints.

20. a. tell my answer to a question only if I'm sure it's right.

    b. tell my answer to a question even if it might be wrong.

21. a. work on getting better in a subject I'm not too good at.

    b. work on getting better in a subject I'm pretty good at.

22. a. play a game that is hard for me to win.

    b. play a game that is easy for me to win.

Why?

The next few questions describe kids doing different kinds of things, and ask you about the reasons they are probably doing them. Circle the letter in front of the one answer which you think would most **probably** or **usually** be the reason for doing that thing.

1. Mary is practicing the piano. Why?

    a. Her piano teacher will be pleased with her.

    b. She wants to learn to play it well.

2. John is painting a picture. Why?

    a. He wants to get a good grade in his art class.

    b. He enjoys painting pictures.

3. Peter is reading a book. Why?

    a. He wants to find out more about something.

    b. His teacher will give him "extra credit."

4. Sally is writing a story. Why?

   a. She likes writing stories.

   b. She wants to please her parents (or friends).

5. Pam is working on some math problems. Why?

   a. She enjoys doing them.

   b. She wants to do well in school.

6. Judy is working on a puzzle that her uncle gave her. Why?

   a. She wants to show him that she likes it.

   b. She enjoys trying to work it out.

7. Jim is building a model. Why?

   a. He wants to show his parents what a good job he can do.

   b. He likes building models.

8. Dan is trying to fix a broken bike. Why?

   a. He wants to see if he can do it.

   b. His parents will be surprised and pleased if he succeeds.

9. Susan is listening to her teacher. Why?

   a. She wants to hear what she is saying.

   b. She might get in trouble if she doesn't listen.

10. Tom is working to make his handwriting better. Why?

   a. His teacher will be pleased with him.

   b. He wants to be able to write better.

11. George is building a treehouse. Why?

    a. He likes doing it.

    b. His friends will like playing with him in it.

12. Joyce is studying her spelling. Why?

    a. She wants to get a good grade in spelling.

    b. She wants to learn to spell better.

What kind of class?

The questions in this part ask about the kind of school class you think you would **like best** and **learn the most in.** There are no right or wrong answers. Circle the letter in front of the answer that comes closest to what you really think.

1. I would most like a class where

    a. kids go and get books or materials whenever they want to.

    b. kids only go and get books or materials if the teacher says it's O.K.

    c. the teacher gives out books or materials when they are needed.

2. I would most like a class where

    a. all the kids work on the same things at the same time.

    b. different kids are always working on different things.

    c. sometimes everyone does the same things; at other times kids work on different things.

3. I would most like a class where

    a. the teacher gives kids any help they need.

    b. kids spend a lot of time helping each other.

    c. the teacher does most of the helping, but kids do some too.

4. I would most like a class where

   a. the kids choose what they want to do.

   b. the teacher and kids together plan what to do.

   c. the teacher plans what the kids will do.

5. I would most like a class where

   a. kids mostly work alone.

   b. kids mostly work in groups.

   c. some work is done alone and some in groups.

6. I would most like a class where

   a. the teacher spends a lot of time talking to the whole class together.

   b. the teacher spends some time talking to the whole class together.

   c. the teacher almost never talks to the whole class together.

7. I would most like a class where

   a. kids stay in their seats, unless the teacher says they can go somewhere.

   b. kids walk around the class whenever they want to.

   c. kids can walk around a little, if it doesn't get too noisy.

8. I would most like a class where

   a. kids decide if they want to work together on things.

   b. the teacher decides which kids will work together on which things.

   c. the teacher and kids talk together to decide who will work on which things.

9. I would most like a class where

   a. only the teacher checks and corrects kids' work.

   b. kids always check and correct each others' work.

   c. the teacher does most of the correcting, but kids do some too.

10. I would most like a class where

   a. things are very friendly and there's not much worry about the work.

   b. the main attention is on getting the work done right.

   c. things are fairly friendly, but people also pay attention to the work.

11. I would most like a class where

   a. kids talk to each other or the teacher whenever they want to.

   b. kids can talk only when the teacher calls on them.

   c. kids can talk to each other a little, if it's needed for what they're doing.

12. I would most like a class where

   a. the teacher takes a lot of time getting to know and working with each kid.

   b. the teacher takes some time getting to know and working with each kid.

   c. the teacher takes a little time getting to know and working with each kid.

13. I would most like a class where

   a. only the teacher talks with the kids about their work.

   b. kids talk with each other about their work, mostly without the teacher.

   c. sometimes the teacher talks about the work, and sometimes just the kids do.

14. I would most like a class where

   a. kids decide on all the rules, and punishments for breaking them.

   b. the teacher decides on the rules and punishments.

   c. the teacher and kids together decide on rules and punishments.

15. I would most like a class where

   a. kids work hard to see who can be best.

   b. kids help each other to learn and don't try to be best.

   c. kids help each other, but each still tries to be best.

16. I would most like a class where

a. the teacher decides exactly **what** the kids should learn and **how** they should learn it.

b. the teacher decides **what** the kids should learn, but they decide **how** to learn it.

c. kids decide **what** to learn and **how** to learn it.

17. I would most like a class where

a. work on any subject can start and end at any time.

b. there are regular starting and ending times for each subject.

c. there are regular starting times, but kids keep on as long as they want.

18. I would most like a class where

a. the teacher follows a plan and doesn't make any changes.

b. the teacher is always changing things around and trying new things.

c. there is a plan, but the teacher makes some changes.

19. I would most like a class where

a. kids learn ways to use new things by working and playing with them.

b. kids are shown one way to use each new thing, and are not allowed to use it any other way.

c. kids are shown one way to use each new thing, but can make up other uses too.

20. I would most like a class where

a. all the kids are about the same age.

b. there are kids of different ages, but each age group stays together.

c. there are kids of different ages all mixed together.

21. I would most like a class where

a. the teacher tells kids when they need to do homework.

b. kids decide for themselves when they need to do homework.

c. teacher and kids talk together and decide on the need for homework.

22. I would most like a class where

    a. there is a lot of testing.

    b. there is little testing.

    c. there is no testing.

23. I would most like a class where

    a. some kids know the work well, and some not so well, and each group stays together.

    b. all the kids know the work about as well as one another.

    c. kids who know the work well, and not so well are all mixed together.

24. I would most like a class where

    a. each kid works in a lot of different places around the classroom.

    b. each kid works mostly in one place, but does some work in other places too.

    c. each kid works at one desk or table.

25. I would most like a class where

    a. all the teaching is done by the teacher.

    b. the teacher does most of the teaching, but kids teach each other some too.

    c. kids spend a lot of time teaching each other.

26. I would most like a class where

    a. kids work on anything they want at any time.

    b. there is a time every day when kids pick what they want to work on.

    c. the teacher always decides what the kids should work on.

Why do things happen?

This part of the booklet describes a number of common experiences most of you have in your daily lives. These statements are presented one at a time, and following each are two possible answers. Read the description of the experience carefully, and then look at the two answers. Choose the one that describes what happens to you most often. **Circle** the letter in front of that answer. Be sure to answer each question according to how **you really feel.**

1. When you do well on a test at school, is it more likely to be

   a. because you studied for it, or

   b. because the test was especially easy?

2. When you have trouble understanding something in school, is it usually

   a. because the teacher didn't explain it clearly, or

   b. because you didn't listen carefully?

3. Suppose your parents say you are doing well in school. Is this likely to happen

   a. because your school work is good, or

   b. because they are in a good mood?

4. Suppose you study to become a teacher, scientist, or doctor and you fail. Do you think this would happen

   a. because you didn't work hard enough, or

   b. because you needed some help, and other people didn't give it to you?

5. When you learn something quickly in school, is it usually

   a. because you paid close attention, or

   b. because the teacher explained it clearly?

6. If a teacher says to you, "Your work is fine," is it

   a. something teachers usually say to encourage pupils, or

   b. because you did a good job?

7. When you find it hard to work arithmetic or math problems at school, is it

   a. because you didn't study well enough before you tried them, or

   b. because the teacher gave problems that were too hard?

8. When you forget something you heard in class, is it

   a. because the teacher didn't explain it very well, or

   b. because you didn't try very hard to remember?

9. When you read a story and remember most of it, is it usually

   a. because you were interested in the story, or

   b. because the story was well-written?

10. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be

    a. because of something you did, or

    b. because they.happen to be feeling cranky?

11. When you don't do well on a test at school, is it

    a. because the test was especially hard, or

    b. because you didn't study for it?

12. When you win at a game of cards or checkers, does it happen

    a. because you play real well, or

    b. because the other person doesn't play well?

13. If people think you're bright or clever, is it

    a. because they happen to like you, or

    b. because you usually act that way?

14. Suppose you don't do as well as usual in a subject at school. Would this probably happen

    a. because you weren't as careful as usual, or

    b. because somebody bothered you and kept you from working?

15. Suppose you became a famous teacher, scientist or doctor. Do you think this would happen

    a. because other people helped you when you needed it, or

    b. because you worked very hard?

16. Suppose your parents say you aren't doing well in your school work. Is this likely to happen to you

    a. because your work isn't very good, or

    b. because they are feeling cranky?

17. When you find it easy to work arithmetic or math problems at school, is it usually

    a. because the teacher gave you especially easy problems, or

    b. because you studied your book well before you tried them?

18. If you can't work a puzzle, is it more likely to happen

    a. because you are not especially good at working puzzles, or

    b. because the instructions weren't written clearly enough?

19. If your parents tell you that you are bright or clever, is it more likely

    a. because they are feeling good, or

    b. because of something you did?

20. If a teacher says to you, "Try to do better," would it be

    a. because this is something she might say to get pupils to try harder, or

    b. because your work wasn't as good as usual?

BOOKLET J

Name ______________________________

School ______________________________

Grade ______________________________

Teacher ______________________________

Your age ______________________________

Your sex (circle one) boy girl

Why I do things

These questions ask about some of the reasons that you get started doing certain things. For many of the questions, you may think that all of the reasons listed are true, but pick the **one** that you think is the **most important.** If the activity is one that you haven't done, answer the way you think it would be if you did it.

1. When I read a difficult book, it is usually because

   a. I was told to, or had to.

   b. I was asked to, and agreed.

   c. I decided to.

   d. I just happened to pick it up.

2. When I practice an instrument, it is usually because

   a. I just started without thinking.

   b. I was told to, or had to.

   c. I was asked to, and agreed.

   d. I decided to.

3. When I visit a museum, it is usually because

   a. I decided to.

   b. I just happened to be there.

   c. I was asked to, and agreed.

   d. I was told to, or had to.

4. When I work hard to learn something, it is usually because

   a. I was asked to, and agreed.

   b. I can't think of anything else to do.

   c. I was told to, or had to.

   d. I decided to.

5. When I write a letter, it is usually because

   a. I was told to, or had to.

   b. I decided to.

   c. I was asked to, and agreed.

   d. I just started writing.

6. When I work a puzzle, it is usually because

   a. I just came across it.

   b. I decided to.

   c. I was asked to, and agreed.

   d. I was told to, or had to.

7. When I play a game of checkers, it is usually because

   a. I asked someone.

   b. I was asked to, and agreed.

   c. I was told to, or had to.

   d. The game just turned up.

8. When I write a story, it is usually because

   a. I was asked to, and agreed.

   b. I was told to, or had to.

   c. I just started writing, and it became a story.

   d. I decided to.

9. When I work a math problem, it is usually because

   a. I decided to.

   b. I just came across it.

   c. I was told to, or had to.

   d. I was asked to, and agreed.

10. When I build a model, it is usually because

    a. I came across it and started doing it.

    b. I was asked to, and agreed.

    c. I decided to.

    d. I was told to, or had to.

11. When I go to a playground, it is usually because

    a. I decided to.

    b. I just happened to be there.

    c. I was asked to, and agreed.

    d. I was told to, or had to.

12. When I clean up my desk, it is usually because

    a. I was asked to, and agreed.

    b. I just did it without thinking.

    c. I was told to, or had to.

    d. I decided to.

13. When I draw a picture, it is usually because

    a. I was told to, or had to.

    b. I decided to.

    c. I started by accident.

    d. I was asked to, and agreed.

14. When I join a club, it is usually because

    a. I was asked to, and agreed.

    b. I was told to, or had to.

    c. I decided to.

    d. I just came across it by accident.

15. When I read about a new topic, it is usually because

    a. I was told to, or had to

    b. I decided to.

    c. I came across it accidentally.

    d. I was asked to, and agreed.

What do you like?

Circle the letter in front of the answer that is **truer for you** for each of these questions:

1. I prefer

    a. working with others.

    b. working by myself.

2. I prefer jobs

    a. that I might not be able to do.

    b. which I'm sure I can do.

3. I would rather learn

    a. fun games.

    b. games where I would learn something.

4. I prefer a game

    a. where I'm better than anyone else.

    b. where everyone is about the same.

5. I would rather

    a. play games that don't have winners or losers.

    b. play games that you can win or lose at.

6. I would rather

   a. wait one or two years and have my parents buy me one big present.

   b. have them buy me several smaller presents over the same period of time.

7. When I am sick, I would rather

   a. rest and relax.

   b. try to do my school work.

8. I

   a. like a puzzle that takes hard work to solve.

   b. like a puzzle that is easy to solve.

9. Before class tests, I am

   a. often nervous.

   b. hardly ever nervous.

10. When I am playing in a game or sport, I am

    a. most interested in just having fun.

    b. most interested in winning.

11. When I am sure I can do a job

    a. I enjoy doing it.

    b. I become bored doing it.

12. After I lose at a game

    a. I want to play again right away.

    b. I want to do something else for a while.

13. After summer vacation, I am

    a. glad to get back to school.

    b. not glad to get back to school.

14. I talk in class

    a. less than other students.

    b. more than other students.

15. I enjoy painting pictures more

    a. when everyone's work gets put on the wall.

    b. when only the best work gets put on the wall.

16. If I were getting better from a serious illness, I would like to

    a. spend my time learning how to do something.

    b. relax.

17. I like playing a game when I am

    a. as good as my playmate.

    b. much better than my playmate.

18. I would prefer classes in which

    a. the students were all as good as one another at the work.

    b. I was better than almost all the others.

19. When I do things to help at home, I prefer to

    a. do usual things I know I can do.

    b. do things that are hard and I'm not sure I can do.

20. I would choose as work-partners

  a. other children who do well in school.

  b. other children who are friendly.

How much I like to do things

The next questions ask **how much** you would **like** or **dislike** doing some different things. After each thing is listed, circle the letter in front of the answer that shows how much you think you would like or dislike doing that thing.

How much would you like or dislike doing each of these things?

1. Working with some friends to solve a hard math problem

(circle **one** of the following)

  a. I would **like** doing this **very much.**

  b. I would **like** doing this **fairly well.**

  c. I would **like** doing this **a little.**

  d. I would **dislike** doing this **a little.**

  e. I would **dislike** doing this **pretty much.**

  f. I would **hate** doing this.

2. Writing a story good enough for the school magazine prize

  a. I would **like** doing this **very much.**

  b. I would **like** doing this **fairly well.**

  c. I would **like** doing this **a little.**

  d. I would **dislike** doing this **a little.**

  e. I would **dislike** doing this **pretty much.**

  f. I would **hate** doing this.

3. Practicing kickball with your team

    a. I would **like** doing this **very much.**

    b. I would **like** doing this **fairly well.**

    c. I would **like** doing this **a little.**

    d. I would **dislike** doing this **a little.**

    e. I would **dislike** doing this **pretty much.**

    f. I would **hate** doing this.

4. Following complicated directions to put together a model

    a. I would **like** doing this **very much.**

    b. I would **like** doing this **fairly well.**

    c. I would **like** doing this **a little.**

    d. I would **dislike** doing this **a little.**

    e. I would **dislike** doing this **pretty much.**

    f. I would **hate** doing this.

5. Making a big snowman with some friends

    a. I would **like** doing this **very much.**

    b. I would **like** doing this **fairly well.**

    c. I would **like** doing this **a little.**

    d. I would **dislike** doing this **a little.**

    e. I would **dislike** doing this **pretty much.**

    f. I would **hate** doing this.

6. Trying to beat a good player in a game of ping-pong

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

7. Being part of your class team in a spelling contest with another class

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

8. Practicing dart throwing to become a better shot

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

9. Trying to figure out a puzzle quicker than you did the last time

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

10. Playing baseball on your team against another team

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

11. Trying to win a school prize by making up the best song with some friends

   a. I would **like** doing this **very much.**

   b. I would **like** doing this **fairly well.**

   c. I would **like** doing this **a little.**

   d. I would **dislike** doing this **a little.**

   e. I would **dislike** doing this **pretty much.**

   f. I would **hate** doing this.

12. Making things out of clay

a. I would **like** doing this **very much.**

b. I would **like** doing this **fairly well.**

c. I would **like** doing this **a little.**

d. I would **dislike** doing this **a little.**

e. I would **dislike** doing this **pretty much.**

f. I would **hate** doing this.

This part lists a number of experiences that most children have at one time or another. Read each of these carefully. After you have read one, decide whether it does or does not fit you. If it **does,** circle the **T** (for true) in front of the statement; if it **doesn't,** circle the **F** (for false) in front of the statement.

T F 1. I always enjoy myself at a party.

T F 2. I never get angry if I have to stop in the middle of something I'm doing to eat dinner, or go to school.

T F 3. Sometimes I don't like to share my things with my friends.

T F 4. I am always respectful of older people.

T F 5. When I make a mistake, I always admit I am wrong.

T F 6. I have never felt like saying unkind things to a person.

T F 7. I always finish all of my homework on time.

T F 8. I am always careful about keeping my clothing neat, and my room picked up.

T F 9. Sometimes I feel like staying home from school even if I am not sick.

T F 10. I always help people who need help.

T F 11. Sometimes I argue with my mother to do something she doesn't want me to.

T F 12. I never say anything that would make a person feel bad.

T F 13. I am always polite, even to people who are not very nice.

T F 14. Sometimes I do things I've been told not to do.

T F 15. I always listen to my parents.

T F 16. I never forget to say "please" and "thank you."

T F 17. Sometimes I wish I could just "mess around" instead of having to go to school.

T F 18. I always wash my hands before every meal.

T F 19. I have never been tempted to break a rule or a law.

T F 20. I sometimes feel like making fun of other people.

T F 21. I am always glad to cooperate with others.

T F 22. I never get annoyed when my best friend wants to do something I don't want to do.

T F 23. I always do the right things.

T F 24. Sometimes I don't like to obey my parents.

BOOKLET K

Name ______________________________

School ______________________________

Grade ______________________________

Teacher ______________________________

Your age ______________________________

Your sex (circle one) boy girl

What kind of work does your father do?

____

Where does he work? ______________________________

What kind of work does your mother do?

____

Where does she work? ______________________________

A Problem

Pretend that you are the mayor of a small city and you are trying to find a good spot to put a new playground. How would you figure out what was the best spot? Write down the things you could do to help you figure it out.

Agree or Disagree?

Read each statement and then circle the number that tells how much you agree or disagree with it.

1. If you are puzzled about something, it is always better to try to find the answer for yourself than to have someone tell it to you.
   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

2. When you want to make something, it is best to start with some help or advice from a teacher.
   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

3. When you want to find out more about something, you should just go to the library and see what you can dig up, without getting help.
   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

4. If you want to fix a broken toy, you should ask for help right away so you won't waste a lot of time on it.
   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

5. When you're working on a project, you should often get help and advice from the teacher, so you won't make a lot of mistakes.
   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

6. The best way to learn about how a camera works is to try to build one yourself, without any help.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

7. Four kids are making up some rules for a new game. Three of them agree on a rule; the fourth one doesn't like it. Since the others agree, he should not say anything about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

8. Kids who get in trouble on one class trip should not be allowed to vote on where to go for the next trip.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

9. Your work group is planning the next science project. Before you get to say what you would like, everyone else has said they want to study volcanoes. You should not bother to say what you would like to do.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

10. When kids are playing a game against another team, the worst players should get to play as much as anyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

11. When you have an opinion, you should stick to it even if everyone says you're wrong.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

12. When the kids in a class at school are voting on something, the kids who are always making noise should not be allowed to vote.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

13. Some kids are trying to make up a play for a school assembly. One of them has thought of something, but is sure the other kids won't like it. He should keep quiet about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

14. It spoils the fun to let people who don't know the rules play games.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

15. Kids who get in trouble on one trip should not get to go on the next trip.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16. Two friends are trying to decide what to do on a Saturday afternoon. One thinks they should go to a movie; the other thinks they should go to the park.

Each should just do what he wants to by himself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16a. If you disagreed in Number 16, write in what you think they should do.

____

17. When kids are playing games, the ones who don't know how to play should get to play as much as anyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

18. New members should be in a club for a while before they get to vote on things.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

19. When two people argue about something, one of them is right and one is wrong.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

20. Your family is planning an outing. You already know that everyone else except you wants to go to a museum. You should not say what you want to do.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

21. The best students in a class should be the ones to decide which new project the class should start.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22. Two friends are playing "Wizard of Oz" and both want to be the scarecrow.

The one who thought up the game should get to be the scarecrow.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22a. If you disagreed in No. 22, write in what you think they should do.

---

23. You learn more by working on projects with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

24. Kids get more interested in a project when they work in a group than when they work by themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

25. Group projects get so mixed up that often the best ideas don't get used.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

26. It is more fun to work on projects by yourself than with groups of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

27. When kids are working on group projects, a few people always end up doing all the work.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

28. You learn more by doing scientific experiments by yourself than with groups of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

29. People in group projects have a very good time working together.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

30. It is more fun to work on math problems with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

31. There is so much argument in group projects that nothing ever gets done.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

32. It is more fun to do scientific experiments with groups of kids than by yourself.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

33. You learn more by working on math problems by yourself than with a group of kids.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

34. Group project results are always good because the best ideas are used.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

35. Classes are best when everyone tries to do better work than everyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

36. School is nice only if everybody shares everything.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

37. It is better for a bunch of kids to work together painting one big picture than for each kid to try to paint the best picture.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

38. You learn more when you try to do better than other kids in school than when you try to help other kids in school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

39. It is better to give prizes to kids who do the best work than to give them to a whole class for doing a good job working together

1 strongly disagree
2 disagree
3 agree
4 strongly agree

40. Kids can make up a better story working by themselves than by working together and helping each other.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

41. It is more fun to play games if you're trying to win instead of just fooling around.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

42. You learn spelling words better when there is going to be a spelling contest.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

43. Games are most fun when you play any old way and don't care whether you win or lose.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

Uses Game

In this imagination game, we'll name an object and ask you to write down lots of different ways that it could be used. For example, if the object is **string**, you might say that it could be used to hold up pants, tie packages, attach a fish hook, jump rope, sew with, hang clothes, pull shades, and a lot of other things. Alright, here is the first one. Take as much time as you want.

Write down all the different ways you could use a **cork**.

Now here is another one. Write down all the different ways you could use a **shoe.**

BOOKLET L

Name ________________________________

School ________________________________

Grade ________________________________

Teacher ________________________________

Your age ________________________________

Your sex (circle one) boy girl

What kind of work does your father do?

____

Where does he work? ________________________________

What kind of work does your mother do?

____

Where does she work? ________________________________

A Mystery

You come home and find your room messed up, although it was neat when you left. You wonder whether it got messed up by the wind, a burglar, or someone just fooling around. How would you figure out which it was? Write down the things you could do to find out.

Agree or Disagree?

Read each statement and then circle the number that tells how much you agree or disagree with it.

1. Each kid should decide for himself what he needs to learn.

   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

2. Parents should be the ones to decide what time kids should go to bed.

   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

3. Teachers should be the ones to decide what the classroom rules should be.

   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

4. Teachers should be the ones to decide how good a kid's work is.

   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

5. Kids should be the ones to decide if they need to do homework.

   1 strongly disagree
   2 disagree
   3 agree
   4 strongly agree

6. Kids should be the ones to decide where they should sit in class.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

7. Teachers should be the ones to decide what kids should work on in school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

8. Parents should be the ones to decide what kids should wear to school.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

9. Kids should be the ones to decide what time to come in at night.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

10. Kids should be the ones to decide when to start on a new project.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

11. The best kind of neighborhood to live in is one with people who are the same in their hobbies, jobs, and interests.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

12. Only kids who have the same ideas and interests can be good friends.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

13. If a new kid came to school who talked and dressed differently from the others, it would be best for him to try to be more like everyone else.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

14. Classes are best when most of the kids have the same likes and interests.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

15. A kid has enough schoolwork of his own to look after without worrying about other kids'.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

16. People should look after themselves and not butt into other people's problems.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

17. It is important for you to help a kid who keeps doing bad things.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

18. Kids who have trouble with schoolwork should work it out by themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

19. We should take care of ourselves and let others take care of themselves.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

20. It is important for you to take extra time to help kids who don't understand something.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

21. It would be a big waste of time if you jumped to help people whenever they had problems.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

22. When people don't have many friends, it is up to **them** to do something about it.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

23. Everybody has enough problems of their own without worrying about other people's.

1 strongly disagree
2 disagree
3 agree
4 strongly agree

For these questions, circle the number in front of the answer that comes closest to what you think.

1. How much do you think you have learned in school this year?

1 – not much

2 – a little

3 – pretty much

4 – very much

5 – more than ever before

2. How interesting have you found school this year?

1 – not very interesting

2 – a little interesting

3 – pretty interesting

4 – very interesting

5 – more interesting than ever before

3. How much fun have you had in school this year?

1 – not much

2 – a little

3 – pretty much

4 – a lot

5 – more than ever before

4. How many kids in this class would you like to stay close friends with?

1 – none of them

2 – 1 or 2 of them

3 – 5 or 6 of them

4 – about half of them

5 – most of them

5. How many of the other kids do you think would like to stay close friends with you?

1 – none of them

2 – 1 or 2 of them

3 – 5 or 6 of them

4 – about half of them

5 – most of them

6. How many kids do you think don't have many friends in this class?

1 – none of them

2 – 1 or 2 of them

3 – 5 or 6 of them

4 – about half of them

5 – most of them

7. How often do kids in this class get mad at each other or fight?

1 – never

2 – not very often

3 – sometimes

4 – pretty often

5 – very often

8. How often do kids in this class help each other?

1 – never

2 – not very often

3 – sometimes

4 – pretty often

5 – very often

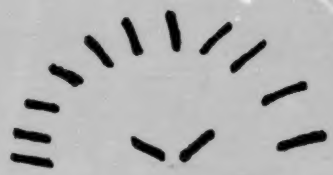
Here are some words that tell different ways kids are. Please read each one and circle the number that tells how often you think you are that way; either **always, most of the time, about half the time, hardly ever,** or **never.**

I THINK I AM:

1. able to get along with other kids	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
2. not able to figure things out in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
3. scared to take chances	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
4. a good worker in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
5. happy with myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
6. not as smart as other kids in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
7. trying my best in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
8. not the way I would like to be	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
9. sure of myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
10. doing poorly in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
11. angry with myself	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never
12. doing a good job in school	1 always	2 most of the time	3 about half the time	4 hardly ever	5 never

Pattern Game

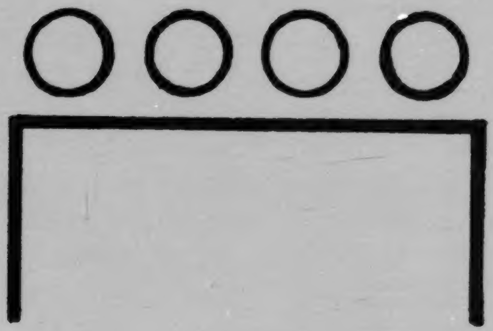
Here's a game where you can really feel free to use your imagination. We'll show you some drawings. Your job is to look at them and then write down all the things you think each drawing could be. Here is an example:



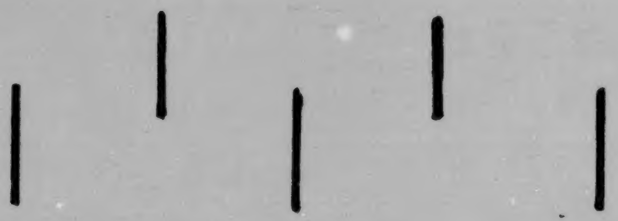
After looking at this, you might say that it could be the rising sun, a porcupine, eye lashes, a brush, a carnation, and probably a lot of other things.

Alright, the first one is on the next page. Take as much time as you want.

Write down all the things you think this could be.



Now here is another one. Write down all the things you think this could be.



Classroom Characteristics

A. School ____________________ Teacher(s) ____________________

Observer ____________________ Date ______________ Time of day: AM 1

PM 2

Single schoolroom 1
Combined schoolroom 2
Open area 3

Background noise level:
low 1
moderate 2
high 3

Crowdedness:

low 1
moderate 2
high 3

Tables/desks in: rows 1
no rows 2

No. children in space:
<20 1
20-25 2
26-30 3
31-40 4
41-50 5
> 50 6

Floors:

bare 1
small rugs 2
room-size rug 3
carpet 4

B. No. adults in space (not O): ____

No. interest centers: ____

Amount equipment visible and accessible to Ss:
little 1
some 2
much 3
very much 4

Amount material visible and accessible to Ss:
little 1
some 2
much 3
very much 4

Plants in room:

none 1
few 2
some 3
many 4

Animals, fish, reptiles, etc., in room:

none 1
few 2
some 3
many 4

Other things from environment (rocks, sand, etc.):

none 1
few 2
some 3
many 4

Signs and pictures on walls:

none 1
some 2
many 3
very many 4

Probable source of wall displays (%):

commercial ______%

T-made ______%

S-made ______%

Observations

Observer watches class for five minutes, then marks each item that occurred at least once in that period. Repeat procedure until six five-minute periods have been observed and the items checked off.

General organization, Topics, Activities

1	2	3	4	5	6		T
						1. Language arts / English	
						2. Spelling	
						3. Handwriting	
						4. Structured writing	
						5. Creative writing	
						6. Reading practice	
						7. Reading	
						8. Math	
						9. Science	
						10. Social studies	
						11. Health / Safety	
						12. Art	
						13. Music	
						14. Games (entertainment)	
						15. Games (educational)	
						16. Problem solving / Logic	
						17. Projects / experiments	
						18. Self or S administered test	
						19. T administered test	
						20. Meeting	

						21. All same group activity	
						22. All same individual activity	
						23. 2 or more diff. simultaneous group activities	
						24. 2 or more diff. simultaneous indiv. activities	
						25. Simultaneous indiv. and group activities	
						26. Disruptive activity shift	
						27. Smooth activity shift	

						28. Textbooks in use	
						29. Audio-Visual Equipment in use	
						30. Commercial materials in use	
						31. T-made materials in use	
						32. S-made materials in use	

T activities

						33. T interacting with total class	
						34. T talking to total class (no interact.)	
						35. T interacting with subgroup	
						36. T talking to subgroup (no interact.)	
						37. T interacting with 1 student	
						38. T talking to 1 S (no interact.)	

1	2	3	4	5	6		T
						39. T talking with adult	
						40. T working at desk or table (alone)	
						41. T reading aloud	

						42. T starts or shifts class task/activity	
						43. T starts/shifts group task/activity	
						44. T starts/shifts individ. S task/activity	
						45. T gives S(s) choice of activities	
						46. T ends activity	

						47. T discusses/demonstrates use of equipment, material	
						48. T tells implications or consequences of something	
						49. T elicits implications or consequences of something	
						50. T amplifies or explains S comment	
						51. T gives incomplete answer	
						52. T gives complete answer	
						53. T asks S to answer own or other S's question	
						54. T gives directions	
						55. T orders, commands	
						56. T suggests, guides	

						57. T gives unrequested help	
						58. T gives requested help	
						59. T turns help request back to requester or other S	
						60. T asks for clarification	
						61. T asks class a question	
						62. T asks group a question	
						63. T asks individual a question	
						64. T asks convergent question (1 answer) academic	
						65. T asks divergent question (many answers) academic	
						66. T answers own question	

						67. T accepts S(s) idea	
						68. T ignores, rejects S idea (no explanation)	
						69. T disagrees with S idea (with explanation)	
						70. T mentions tests/relative performance	
						71. T organizing/orienting	
						72. T supervising/watching	
						73. T walks among Ss	
						74. T plans with Ss	
						75. T calls on S (after offer)	
						76. T calls on S (after no offer)	

						77. T listens attentively to S	
						78. T invokes/announces classroom/discipline rule	
						79. T discusses discipline with Ss	
						80. T mentions subject rule	
						81. T distracts S(s) from disruptive activity	
						82. T warns	
						83. T criticizes behavior	
						84. T scolds	
						85. T shouts	
						86. T punishes	

1	2	3	4	5	6		T
						87. T uses firm tone	
						88. T uses sharp tone	
						89. T praises/approves behavior	
						90. T praises S work or comments	
						91. T criticizes S work or comments	

						92. T talks about S(s) work	
						93. T gives feedback	
						94. T prods	
						95. T encourages elaboration of idea or activity	
						96. T encourages S expression	
						97. T uses sarcasm	
						98. T shows annoyance	
						99. T shows anger	
						100. T smiles	
						101. T touches/hugs S	
						102. T socializes with S(s)	

						103. T ranges from topic	
						104. T encourages ranging from topic	
						105. T discourages ranging from topic	
						106. T participates in S activity (not 'teaching')	
						107. T drills Ss (rote, repetitive work)	
						108. T gives factual material	
						109. T tells personal opinion, experiences, likes	
						110. T gives speculative, hypothetical material	
						111. T speech totally inaudible most of the time	

S activities

						112. S(s) work on the floor	
						113. 5 or more Ss move purposefully	
						114. 3 or more Ss move around aimlessly	
						115. 5 or more Ss fidgeting	
						116. 2 or more Ss apparently daydreaming	
						117. S(s) shouting	
						118. S(s) horseplay	
						119. Ss argue	
						120. S(s) tries to stop other's disruptive behavior	

						121. 5 or more Ss smile	
						122. S frowns, cries	
						123. S(s) talk about non-class topic	
						124. S expresses annoyance	
						125. S competes with S	
						126. Ss work together	
						127. S helps (teaches) S	
						128. Ss share, cooperate	
						129. S praises S (approves)	
						130. S criticizes S (disapproves)	
						131. S teases S(s) (friendly)	
						132. S teases S(s) (unfriendly)	
						132a S-S discussion (academic)	

1	2	3	4	5	6		T
						133. S seeks feedback, evaluation	
						134. S gives feedback, evaluation	
						135. S asks for directions or help	
						136. S seeks attention of T	
						137. S - T discussion of work	
						138. S starts or shifts activity on own	
						139. group starts or shifts activity on own	
						140. S asks permission	
						141. S gets or replaces materials, equipment on own	

						142. Ss form own work group	
						143. S complies with T request or demand	
						144. S ignores or rejects T request or demand	
						145. S offers response (raises hand)	
						146. S gives solicited question or comment	
						147. S raises a question, or comments (unsolicited)	
						148. S answers T question	
						149. S answers S's question	
						150. S gives factual material	
						151. S gives opinions, experiences, likes	
						152. S gives speculative, hypothetical material	

						153. S experiments with material, equipment	
						154. S builds on T comment	
						155. S builds on S's comment	
						156. S waits	
						157. S listens, watches	
						158. ½ class or more working intently with T attention	
						159. ½ class or more working intently without T attention	
						160. 5 or more Ss paying attention to T	
						161. 2 or more Ss not paying attention to T (when expected)	

Classroom Atmosphere Ratings

These are to be made at the end of each classroom observation visit, and refer to impressions derived from the total visit. Try to make each rating independently of all the others; don't think about consistency, either among the items in this section, or between these ratings and the classroom observation items. Circle one number for each item.

S Ratings

1.	S work self-sustaining	1	2	3	4	5	6	S work teacher-dependent
2.	Ss never worked on convergent tasks	1	2	3	4	5	6	Ss worked on convergent tasks most of the time
3.	Ss never worked on divergent tasks	1	2	3	4	5	6	Ss worked on divergent tasks most of the time
4.	Ss moved very much	1	2	3	4	5	6	Ss moved very little
5.	Ss had no voice in planning class activities	1	2	3	4	5	6	Ss totally responsible for planning class activities
6.	Ss seemed bored	1	2	3	4	5	6	Ss seemed extremely interested
7.	Ss always followed their own interests	1	2	3	4	5	6	Ss always followed a prescribed plan
8.	Ss talked very freely	1	2	3	4	5	6	Ss talked only at T direction
9.	Single common activities	1	2	3	4	5	6	Varied simultaneous activities
10.	Ss showed much initiative	1	2	3	4	5	6	Ss showed no initiative
11.	Ss were compliant	1	2	3	4	5	6	Ss were independent
12.	Each S always worked at own pace	1	2	3	4	5	6	Common pace aimed at
13.	Ss were active (productive)	1	2	3	4	5	6	Ss were passive (receiving)
14.	Ss had no alternatives	1	2	3	4	5	6	Ss constantly making choices
15.	Ss mostly uninvolved in class activities	1	2	3	4	5	6	Ss highly involved in class activities
16.	Ss appeared unhappy	1	2	3	4	5	6	Ss appeared happy

Class rating items

17.	Creative	1	2	3	4	5	6	Uncreative
18.	Tense	1	2	3	4	5	6	Relaxed
19.	Rushed	1	2	3	4	5	6	Leisurely
20.	Ss all used same materials or books at same time	1	2	3	4	5	6	Diverse materials or books in use at same time
21.	Accepting	1	2	3	4	5	6	Rejecting
22.	Minimally task-oriented	1	2	3	4	5	6	Extremely task-oriented
23.	Minimally person-oriented	1	2	3	4	5	6	Extremely person-oriented
24.	Never cooperative	1	2	3	4	5	6	Very frequently cooperative
25.	Never competitive	1	2	3	4	5	6	Frequently competitive
26.	Not at all business-like	1	2	3	4	5	6	Extremely business-like
27.	Friendly	1	2	3	4	5	6	Hostile
28.	Not at all carefree	1	2	3	4	5	6	Extremely carefree, jovial
29.	No rules in evidence	1	2	3	4	5	6	Many rules in evidence
30.	Quiet	1	2	3	4	5	6	Extremely noisy
31.	Relatively devoid of stimuli	1	2	3	4	5	6	Full of stimuli
32.	Repetitive	1	2	3	4	5	6	Extremely varied
33.	Calm	1	2	3	4	5	6	Excited
34.	Orderly	1	2	3	4	5	6	Unruly
35.	Rigid regarding procedures	1	2	3	4	5	6	Extremely flexible regarding procedures
36.	Random sequence of activities	1	2	3	4	5	6	Orderly sequence of activities
37.	Behavior was not at all spontaneous	1	2	3	4	5	6	Behavior was extremely spontaneous
38.	Untidy	1	2	3	4	5	6	Very tidy
39.	Oriented to novel, unusual	1	2	3	4	5	6	Not oriented to novel, unusual

T ratings:

☐ 1 main T only -- circle the appropriate number

☐ 2 or more team Ts -- circle number which represents an average of their behavior

☐ main T(s) and special T -- circle rating for main (team), underline rating for specialist and indicate specialty (music, art, etc.)

40.	T very energetic	1	2	3	4	5	6	T unenergetic
41.	T dry	1	2	3	4	5	6	T flamboyant, dramatic
42.	T emphasized memory, rote	1	2	3	4	5	6	T emphasized comprehension, analysis
43.	T mostly critical (negative)	1	2	3	4	5	6	T mostly praising
44.	T not at all punitive	1	2	3	4	5	6	T punitive
45.	T spoke very rapidly	1	2	3	4	5	6	T spoke very slowly
46.	T not at all warm	1	2	3	4	5	6	T very warm
47.	T frequently used ridicule, sarcasm	1	2	3	4	5	6	T never used ridicule, sarcasm
48.	T frequently consulted with individuals or small groups	1	2	3	4	5	6	T never consulted with individuals or small groups
49.	T frequently gave individual attention	1	2	3	4	5	6	T never gave individual attention
50.	T encouraged exploration	1	2	3	4	5	6	T discouraged exploration
51.	T protective, sheltering	1	2	3	4	5	6	T not protective
52.	T appeared uncomfortable	1	2	3	4	5	6	T appeared extremely comfortable, confident
53.	T spoke extremely clearly, coherently	1	2	3	4	5	6	T was vague, unclear, incoherent
54.	T not at all permissive	1	2	3	4	5	6	T highly permissive
55.	T unenthusiastic	1	2	3	4	5	6	T highly enthusiastic
56.	T sensitive to Ss	1	2	3	4	5	6	T insensitive to Ss

57.	T seldom exercised direct control	1	2	3	4	5	6	T almost always exercised direct control
58.	T seldom controlled indirectly	1	2	3	4	5	6	T often controlled indirectly
59.	T mostly lectured	1	2	3	4	5	6	T never lectured
60.	T often gave direct and immediate feedback	1	2	3	4	5	6	T seldom gave direct and immediate feedback
61.	T often used humor	1	2	3	4	5	6	T never used humor
62.	T seldom laughed	1	2	3	4	5	6	T often laughed
63.	T promoted S independence, autonomy	1	2	3	4	5	6	T discouraged S independence, autonomy
64.	T discouraged open S expressiveness	1	2	3	4	5	6	T encouraged open S expressiveness
65.	T actively sought and accepted procedural suggestions	1	2	3	4	5	6	T neither sought nor accepted procedural suggestions
66.	T gestured very little	1	2	3	4	5	6	T gestured constantly
67.	T voice varied, expressive	1	2	3	4	5	6	T voice monotone
68.	T accepted broad range of behavior	1	2	3	4	5	6	T accepted narrow range of behavior
69.	T gave more attention to boys	1	2	3	4	5	6	T gave more attention to girls
70.	T impatient	1	2	3	4	5	6	T very patient

Additional comments

Please make notes in space below about any unusual or interesting occurrences during the visit; or any aspects of the class which you feel are worth mentioning and were not reflected in the observations or ratings.

OBSERVERS' MANUAL

Spencer Foundation Project

Observation Visits - General Instructions

The categories and ratings have been defined in the manual so that all Os will be watching for and recording the same aspects of behavior in terms of the same criteria. If an O relies on personal interpretation of each item without reference to how it has been defined, the reliability of the item will be decreased. The manual should be studied carefully and frequently (at least once a week during observations). Even after you feel very familiar with all the items, it is easy to gradually develop your own definitions which may differ to some degree from those in the manual. Only continual review of the definitions can avoid this. The manual should not be taken into the classrooms.
Items that do not seem to be clearly defined in the manual can be discussed before a further visit by phoning Dan Solomon or Art Kendall, 279-3633.

The Observation Visit

On arriving at a school, the O should go to the office and explain that the T (name) is taking part in a research project directed by Dr. Solomon, and that T is expecting O at (time). If T is absent or if the observation cannot take place, O should try to set up another visit at the same time of day and contact D. Solomon or A. Kendall as soon as possible (in fact, it would be best to check back with us before you leave the school, to avoid conflicts, etc.). An office person will generally accompany O to the classroom, and introduce O to the T. If possible, O should ask where it will be convenient to sit during the observation and ask for permission to move around the room. If it would be difficult to interrupt the class, T sometimes simply waves the O into the room, and the O should then find a place where observations can be made unobtrusively. The O will generally be able to move around freely in a classroom where there are a number of activities going on. If the T is in front of the class with everyone's attention focused there, a seat at the side of the class, where both T and Ss' reactions can be seen, is advised. O should spend a few minutes in the class before starting the first observation period.

Os should initiate no contacts with children, should respond in a minimal but friendly fashion to children's advances, and gently but definitely cover the observation form when children (or adults) approach. Questions from Ts and Ss can usually be satisfied with a short answer; for example:

Child:	What are you doing?
O:	I'm watching what happens in your class; or, just watching.
Child:	What are you writing down?
O:	I'm writing down things that happen in your class.
T:	Let me see what sort of thing you're looking for.
O:	It's probably better if you don't, because it might influence what you and your class do.

After the six observations have been completed, if it seems that it might be helpful and not inconvenient, O can stay in classroom a further 10 minutes to observe for general aspects of classroom atmosphere before filling out the ratings section.

Observation Booklet - General Instructions

The observation booklet should be filled out in this order:

1. Classroom characteristics - Section A
2. Observations
3. Classroom atmosphere ratings
4. Classroom characteristics - Section B

Filling out classroom characteristics (Section A) before beginning observations gives the children time to get used to (and hopefully forget) the O, so that class procedures and atmosphere observed are as "normal" as possible by the time the first observation begins. Classroom characteristics (Section B) will be easier to fill out at the end of the observations when the classroom has become more familiar.

If the children move from their own classroom --to the music room, or to another room to watch TV, etc.-- the O should go with them. If the move comes in the middle of a 5-minute observation period, that observation should be discounted and a new observation begun in the new room.

Observation Technique

O watches class for exactly 5 minutes (use stopwatch) then marks each item that occurred at least once in the period. Each column on the form represents one 5-minute observation period. Thus all categories occurring during the first observation period are marked in Column 1, all those occurring in the second observation period are marked in Column 2, and so on. Procedure is repeated so that six 5-minute periods are tallied altogether. Total number of times an item has been checked can be entered at the end of (or after) the visit, when ratings and classroom characteristics have been completed.

> NB. Only one check mark is required for each behavior observed in any one time period, even if that behavior is repeated; e.g., if T is giving directions (Item 55) on two separate occasions in time period 1, do not check Columns 1 and 2 -- only Column 1, and put only one mark in Column 1.

See following pages (Observation Form Category Definitions) for definitions of all items to be observed and for procedures when there is more than one T present.

Classroom Characteristics - Guidelines
(Cover Sheet Definitions)

Fill out Section A before beginning observations, and Section B at the end of the visit. Circle appropriate number and fill in blanks.

Combined schoolrooms - Doesn't refer to combined grades in one room but to combined rooms which could become two or more single classrooms.

Open area - Space which can/does contain more than one class and which could not be made into separate classrooms.

Crowdedness - One's impression from looking around the class.

Rows - Refers to traditional lined-up, front-to-back arrangement.

Background noise - Independent of the presence of acoustic tiling, how much background noise is evident? (Include noise from other classes, from heating system, from pipes, from outside; not noise from in-class activities, talking, etc.)

Carpet - Means wall-to-wall carpeting.

Room-size rug - 9 ft. x 12 ft., etc.

Small rug - Small enough to be carried around by the children, e.g., scatter rug.

Interest center - An area where children can work independently on a special project, or where a group of objects related to a particular topic are displayed and ideas are suggested for projects, with appropriate material or equipment; must be more than signs, posters, or pictures. There must be provision for children to do work on the topic--thematically-oriented work spot.

Amount of equipment visible and accessible - includes microscopes, globe, games, record player, TV, projector, etc.

Little, some, and much - These are relative to the classes you have seen. Think about what you have seen during the questionnaire administration visits and make these judgments according to these ranges. (This applies to the other judgments of amounts also)

Material - Includes books, papers, paints, glue, etc.

Observation Form Category Definitions

General organization, topics, and activities

In this section categories should not be considered to be mutually exclusive: topics such as drugs, ecology, etc., may be included under various categories, depending on the approach taken; and categories should be checked if any S is engaged in the activity.

1. Language arts/English - grammar, sentence structure, word usage, vocabulary, speech. (Distinguish from No. 2, spelling; Nos. 4 and 5, structured or creative writing; and No. 6, reading practice.)

2. Spelling - written or verbal; phonics.

3. Handwriting - practicing printing letters or writing in script, penmanship, pattern exercises. (Distinguish from Nos. 4 and 5, structured or creative writing.)

4. Structured writing - includes copying, workbooks, reports, and anything that does not involve much use of imagination.

5. Creative writing - writing that involves use of imagination; may or may not be on an assigned topic.

6. Reading practice - reading practice or reading techniques rather than reading for information; e.g., SRA reading kits, etc.

7. Reading (other) - any reading for information, pleasure, etc.

8. Math - includes math problems, exercises, doing math worksheets.

9. Science - discussion of physics, chemistry, biology, the environment, nature, ecology, astronomy, etc. (Distinguish from No. 11, health.)

10. Social studies - history, geography, group relations, current events, government, etc.

11. Health/safety - discussion of hygiene, physical fitness, drugs; bicycle rules, pedestrian rules, traffic regulations, Officer Friendly programs, etc.

12. Art - finger painting, papier mâché, drawing, sculpture, crayons, tracing, cutting, use of colored paper, clay, etc.

13. Music - singing, playing musical instruments, listening to records, tapes.

14. Games (entertainment) - played simply for fun; no discernible educational objective.

15. Games (educational) - includes word games, math games, problem-solving games, etc. If there is a clear educational goal, check this category.

16. Problem-solving/logic - finding solutions through a series of steps; puzzles, etc.

17. Projects/experiments - A project is a comprehensive or long-term activity with a visible product; e.g., raising plants and keeping a record of observations, making a booklet about a State, etc. Include experiments in science, social sciences, etc. (Art projects are included in No. 12, Art.)

18. Self (or S)-administered test - includes tests in workbooks, etc. -- students testing each other. Results may or may not be recorded.

19. Teacher-administered test - verbal or written. Results may or may not be recorded.

20. Meeting - talking about class business, planning future activities, voting, etc.

> NOTE: The term "activity" in following sections refers not only to topic or subject, but to mode of physical behavior; e.g., reading, listening, watching, painting, etc.

21. All same group activity - Virtually all students working on the same task, involving interaction; can be total class or subgroups; e.g., games, spelling bees, group discussions/projects.

22. All same individual activity - all students working on the same task individually; e.g., all students taking a test, or all working in math workbooks. Include all students reading, even if each is reading a different book. A few students daydreaming, etc., does not preclude this item.

23. Two or more different simultaneous group activities.

24. Two or more different simultaneous individual activities

25. Simultaneous individual and group activities

26. Disruptive activity shift - A change by class or group from one physical activity to another characterized by excessive noise, clowning around, irrelevant activity, etc. Not necessarily a subject change. An example of a change is going from Ss listening to T explaining how to do something to Ss doing it.

27. Smooth activity shift - a non-disruptive change by the group or class from one physical activity to another.

28. Textbooks in use - being used and not simply visible.

29. Audio-visual equipment in use (example: TV, tape recorder, phonographs, cameras, projectors of all kinds, reading pacers, etc.)

30. Commercial materials in use - include experiment kits, flash cards, cuisinaire rods. Does not include art supplies, pencils,

pens, paper, chalk, blackboards, etc.

31. Teacher-made materials in use - e.g., dittoed sheets, charts, folders, maps, etc.

32. Student-made materials in use - being used and not being made or simply being displayed; e.g., books written by Ss being read by other Ss, S-made art smocks, pencil boxes, puzzles, etc.

Teacher activities

NOTE: In this section, when more than one T is present, note all behavior by all Ts. Also, T verbal categories apply even if only one S is involved -- unless group is specified or implied in category.
"Interacting with" - more than minimal input from Ss.

"Talking to" -Predominantly one-way communication.

33. T interacting with total class - discussion with class as a unit; give-and-take.

34. T talking to total class - no interaction

35. T interacting with subgroup

36. T talking to subgroup - no interaction

37. T interacting with one student - relating on a one-to-one basis. (Distinguish from No. 63, asks individual a question).

38. T talking to one student - no interaction

39. T talking with adult - T speaking with another T, parent, etc.

40. T working at desk or table (alone) - no interaction

41. T reading aloud - to class or subgroup

42. T starts or shifts whole class task or activity

43. T starts or shifts group task or activity

44. T starts or shifts individual S task or activity

45. T gives Ss choice of activities - for immediate work or for future activity.

46. T ends activity (S, group, or class)

47. T discusses/demonstrates use of equipment, material - e.g., audio-visual aids, workbooks, educational games, etc.

48. T tells implications or consequences of something - some statement of form "if x, then y."; e.g., include school subjects, behavior, etc.; e.g., effect of climate on plant life; what happens if people are not considerate of each other, etc.

49. T elicits implications or consequences of something - T tries to get Ss to state what implications or consequences would be.

50. T amplifies or explains S's comment - enlarges on what S has said; e.g., uses S comment or contribution as starting point of discussion.

51. T gives incomplete answer - giving a partial, incomplete answer; a beginning or "clue" as opposed to a full answer.

52. T gives complete answer - distinguish from No. 51, incomplete or partial answer.

53. T asks S to answer own or other S's question - turns question back to S or to other S, or to the whole class.

54. T gives directions - How to do something

55. T orders, commands - imperative to do something; student has no option not to do it.

56. T suggests, guides - T encourages but does not insist that S do something.

57. T gives unrequested help - T aids S who did not explicity ask for help.

58. T gives requested help - T aids a S following a clear and explicit request for help.

59. T turns help request back to requester or other S -

60. T asks for clarification - T asks for a more understandable re-statement.

61. T asks class a question - No specific respondent indicated; seeks offer of response(s).

62. T asks group a question - same as No. 61, except addresses question to a subgroup.

63. T asks individual a question - specific respondent indicated even if class is involved in the situation.

64. T asks convergent question (one answer) academic - T asks S(s) to answer question which has only one answer or a limited set of correct answers; e.g., how much is 9 x 12? What is the capital of France? What happens if you mix vinegar and baking soda?

65. T asks divergent question (many answers) academic - T asks S(s) to answer question which has multiple acceptable answers; e.g.:

What would happen if people had no thumbs? What would happen if we had no clocks? What kinds of things would happen if rubber turned to wood? How many ways can you use a brick?, etc.

66. T answers own question - when no S supplies the required answer.

67. T accepts Ss'ideas - i.e., does not ignore or reject; praises idea or elaborates on it to show that it's worthwhile; e.g., suggests things that can be done to follow it up.

68. T ignores, rejects S idea (no explanation) - disagrees with, rejects S idea without explanation; includes ignoring S idea (if T has noticed it).

69. T disagrees with S idea (with explanation) - follows disagreement with reason(s)for disagreeing.

70. T mentions tests/relative performance - mentions tests, scores, grades, or relative performance of different students --anything that refers to competitive standards.

71. T organizing, orienting - T prepares Ss for work, task sections, or tasks to come; e.g., plans for the day, changes in seating, choosing Ss for particular tasks, etc.

72. T supervising/watching - Ss occupied; T giving close attention to ongoing activity; involves occasional interaction.

73. T walks among Ss

74. T plans with Ss - T and S(s) together decide on the details of a project, the day's schedule, or future activities, etc.

75. T calls on S (after offer)

76. T calls on S (after no offer)

77. T listens attentively to S - pays close attention to S and tries to understand S. When T is being observed from a distance, facial expression, etc., will indicate careful listening. This excludes listening to brief responses, simple requests.

78. T invokes or announces classroom or discipline rule - T either creates a new rule or refers to a rule previously decided upon, e.g., "You know you are not supposed to do that.", "No more gum-chewing in class."

79. T discusses discipline with Ss - discusses discipline issues and problems, S comportment, noise, etc.

80. T mentions subject rule - e.g., "i before e, except after c"; "opposite poles of magnets attract", etc.

81. T distracts S(s) from disruptive activity - Intervenes without scolding or criticism, etc., and directs S(s) to other activity.

82. T warns - T mentions a way of avoiding future negative consequences; e.g., "Be quiet or you will miss recess."

83. Criticizes behavior - tells S(s) their behavior is inappropriate, or annoying, etc. (Distinguish from #91, criticizes work.)

84. Scolds - extended criticism, with harsh tone.

85. Shouts - T raises voice to Ss.

86. T punishes - e.g., withdrawing a privilege.

87. T uses firm tone (in discipline situation) - The T is quietly and firmly insistent.

88. T uses sharp tone (in discipline situation) - If the quality of T's voice is harsh or assumes an edge or a rasping quality, then this item should be checked.

89. T praises/approves behavior - not work.

90. T praises S's work or comments

91. T criticizes S's work or comments - tells S that work is wrong or bad, etc.

92. T talks about S's work - T discusses past or ongoing work or task with individual S or group; planning, giving advice. (Distinguish from #91, criticizing.)

93. T gives feedback - gives S(s) information about the correctness of S(s) work or comment. May refer to any aspect of S(s) work: approach or outcome. Feedback does not exclude praise or ctiticism.

94. T prods - presses S for an answer, or for greater effort.

95. T encourages elaboration of idea or activity - includes suggesting and/or reinforcing elaboration of an activity or idea; e.g., if animals are being raised, T encourages Ss to discover which geographical areas they come from, their place in the ecological balance; encourages weighing them for math, etc.

96. T encourages S expression - e.g., T encouraged Ss to talk freely, to follow own trend of thought, to express emotion. Can include encouraging free discussion among groups of Ss.

97. T uses sarcasm - partially disguised, negative comments; e.g., "A smart person like you should be able to solve that."

98. T shows annoyance - It is noticeable that T is moderately irritated by the Ss' behavior, etc.

99. T shows anger - a more intense state of irritation than "annoyance" (#98). Any one act may show either anger or annoyance, but not both. Both kinds of acts may occur in same 5-minute period.

100. T smiles

101. T touches/hugs - pats, puts arm around shoulders, tousles hair, etc.

102. T socializes with S(s) - T talking about any non-academic matters with S(s) (not adults).

103. T ranges from topic - T goes off in various directions while talking to Ss - may, or may not, seem relevant.

104. T encourages ranging from topic - includes positive response to S(s) ranging from topic, as well as promoting ranging.

105. T discourages ranging from topic - when S starts to range from topic, T inhibits it by ignoring it or by reacting negatively to it.

106. T participates in S activity (not "teaching") - T participates on equal basis with Ss or takes same roles as Ss in some activity.

107. T drills Ss (rote, repetitive work) - e.g., multiplication tables, history dates.

108. T gives factual material - anything T presents as factual, e.g., 7x10 = 70; names of states, spelling, science laws. Exclude things clearly labelled as speculative, theoretical, hypothetical, or opinion.

109. T tells personal opinion, experiences, likes - T labels comments as opinions by saying: "I feel..," "I think ..," "In my opinion..." (distinguish from #110).

110. T gives speculative, hypothetical material - things clearly labelled as such, e.g., "It might be that..." (distinguish from #109)

111. T's speech totally inaudible most of the time - should be checked when O is unable to check T verbal categories because of inability to hear T. This refers to whole observation time unit, not simply to one or two instances during the period.

Students' Activities

112. S(s) work on the floor - does not include sitting on the floor to watch something (film, TV) or to listen to a story, etc.

113. 5 or more Ss move purposefully - e.g., Ss get up for paper or to sharpen pencils. Ss walk directly toward some goal.

114. 3 or more Ss move around aimlessly - Ss wander from place to place with no apparent goal.

115. 5 or more Ss fidgeting

116. 2 or more Ss apparently daydreaming - e.g., vacant expression, gazing out of window, etc.

117. S(s) shouting

118. S(s) horseplay - any rough or boisterous play by Ss. (Distinguish from #119, arguing.)

119. Ss argue - vocal disagreement between 2 or more Ss which may range from bickering to anger.

120. S(s) tries to stop other's disruptive behavior -- e.g., S asks other S to be quiet. Do not take into account the success of the attempt.

121. 5 or more Ss smile

122. S frowns, cries

123. S(s) talk about nonclass topic - S talks with T or another S about topic not related to schoolwork.

124. S expresses annoyance - should be more than minimal irritation - a clear expression of annoyance. May only involve 1 S, and may or may not be part of an argument, #119.

125. S competes with S - Any case where 1 S seems to be trying to do better than other S(s), e.g., racing; trying to see who can finish first or get more right, etc.; comparing work for relative quality.

126. Ss work together - relatively equal roles (Distinguish from #127)

127. S helps (teaches) S - not just Ss working together (relatively unequal roles); include giving directions.

128. Ss share, cooperate - May be distinguished from #125, working together, since it is possible to share and yet not be working together. (Distinguish from #127, helping/teaching.)

129. S praises S (approves) - includes comments on work or person, e.g., "Hey, that's neat!", "You're OK."

130. S criticizes S (disapproves) - includes comments on work or person, e.g., "You're dumb!", "That's a lousy job."

131. S teases S(s) (friendly) - distinguish from #132.

132. S teases S(s) (unfriendly) - S picks on other S; includes bullying. The unfriendly intent must be obvious for this item to be checked.

133. S seeks feedback, evaluation - not just of produced work, but also of ideas, approach, etc.; includes seeking feedback from T or other Ss, e.g., "Is this the right way to do it?", "How's this?"

134. S gives feedback, evaluation

135. S asks for directions or help - may ask other S or T. (Distinguish from #133, request for feedback.)

136. S seeks attention of T - does not include raising hand to offer response #145.

137. S-T discussion of work - any discussion of classwork between T and 1 or more Ss; can refer to a specific item of work, or to work in general.

138. S starts or shifts task or activity on own.

139. Group starts or shifts task or activity on own.

140. S asks permission.

141. S gets or replaces materials, equipment on own.

142. Ss form own work group -- Ss decide with whom they want to work, or just get together to work.

143. S complies with T request or demand.

144. S ignores or rejects T request or demand - S resists or disobeys T (or doesn't respond to T).

145. S offers response (raises hand) - T asks question of class and S raises hand, etc., to answer question.

146. S gives solicited question or comment - S gives question or comment after T has requested same (either from class or individual S).

147. S raises a question, or comments (unsolicited) - not preceded by T request for same.

148. S answers T question.

149. S answers S's question.

150. S gives factual material - see #108.

151. S gives opinions, experiences, likes - see #109.

152. S gives speculative, hypothetical material - see #110.

153. S experiments with material, equipment - playing around, trying different approaches or combinations to see effects; includes art, scientific equipment or material, machinery, etc.

154. S builds on T's comment - S elaborates on something T has said.

155. S builds on S's comment - S elaborates on something other S has said.

156. S waits - e.g., S has finished something and waits for T or other Ss before doing something else; or S waits for start of activity.

157. S listens, watches - listens to T or other S; watches what is going on in the classroom, etc.

158. ½ class or more working intently, with T attention

159. ½ class or more working intently, without T attention

160. 5 or more Ss paying attention to T

161. 2 or more Ss not paying attention to T (when expected)

Classroom Atmosphere Rating Definitions

General comments - These ratings are to be made at the end of each classroom observation visit, and they refer to impressions derived from the total visit. Try to make each rating independently of all the others; don't think about consistency, either among the rating items, or between the ratings and the classroom observation items. The ratings refer to what occurred during your visit only --what you observed. Don't try to make inferences about what you think is probably typically or generally true --only what was there on this occasion.

In instances when more than one teacher was present for all or most of the observation period, adjustments need to be made for those ratings which refer to teacher behavior (Nos. 40-70). If there are two (or more) teachers with equally central roles, make teacher ratings which represent your best judgment of an average of their behavior. If there is a primary teacher and a special teacher present (e.g., music, art, visiting poet), or an assistant, use circled numbers to represent the primary teacher and underlined numbers to represent the specialist or assistant (and write notes about the secondary role in the margin). If parent volunteers are present, note their presence but do not rate their behavior.

The following descriptions generally define the two extreme poles of each scale. The ratings used, 1 to 6, should represent the degree to which the students, teacher, or class approached either of the poles, as defined.

When you have finished the ratings, please make notes about any unusual or interesting occurrences during the visit; or, any aspects of the class which you feel are worth mentioning. Any indications of differential behavior toward different subgroups of children, overt or latent themes conveyed by the class activities and teacher comments, teacher and student reactions to unusual occurrences, and any general impressions you have which you feel are not represented by the observations or ratings you have made should be mentioned.

Student Rating Items

1. S work self-sustaining----------S work teacher-dependent
   If Ss worked by themselves, without the aid of a T; if they went from task-to-task on their own (or step-to-step within a task), then the Ss work was "self-sustaining" (score 1). If Ss worked only under direct supervision of the T; or Ss constantly went to the T for direction, etc.; or if the T initiated all new tasks, then the Ss' work was "teacher-dependent (score 6).

2. Ss never worked on convergent tasks---------Ss worked on convergent tasks most of the time
   Convergent tasks are those for which there is a single correct answer or a distinctly limited number of correct answers or outcomes; e.g., puzzles, math problems, spelling, grammar exercises.

3. Ss never worked on divergent tasks-----Ss worked on divergent tasks most of the time
Divergent tasks are those for which there are multiple acceptable or appropriate approaches or outcomes; e.g., imaginative work in general, including use of fantasy, making up plays or stories, art work,hypothetical discussions, or speculation.

4. Ss moved very much----------------Ss moved very little
If the Ss moved freely and frequently; e.g., to get supplies, discuss a project, talk to the T, fool around, etc., then they can be scored at the "very much" end of the scale (1). If Ss sat in their places most of the time, if the T or an assistant brought work to the Ss, etc., score at the "very little" end of the scale (6).

5. Ss had no voice in planning class activities -------------- Ss totally responsible for planning class activities
If the T made all plans and decisions for the Ss, and gave the Ss no chance to alter these plans or decisions, then score 1. If the Ss made all decisions and planned everything they did, and if the T let Ss carry out their wishes, score 6.

6. Ss seemed bored--------------Ss seemed extremely interested
If it seemed that Ss were not interested in what they were doing; if they were often distracted from their tasks; if they seemed vacant, lethargic, or unusually restless; score 1. If the Ss appeared to be absorbed in and enjoying what they were doing; if their full attention was on the task they were doing (including listening and watching tasks, etc.); then score 6.

7. Ss always followed their own interests-------Ss always followed a prescribed plan
If the Ss did whatever they wanted to whenever they wanted to, and always appeared to be doing what interested them, score 1. If the plan for the S had been already decided upon or prearranged and the Ss followed this plan, whether they seemed interested in it or not, score 6.

8. Ss talked very freely----------Ss talked only at T direction
Refers to degree to which S speech was, at one extreme, open and spontaneous, or, at the other extreme, heard only following T's permission to speak.

9. Single common activities----------Varied simultaneous activities
If all Ss worked at the same task(s) at the same time, score 1. If many different activities were typically going on at the same time (whether by S choice or not), score 6.

10. Ss showed much initiative--------------Ss showed no initiative
If Ss decided on and started new tasks on their own, and took responsibility to do things without waiting to be told, score 1. If they waited for the T's permission to start a new task, or if they had to be told explicitly what to do next, score 6.

11. Ss were compliant------------------------Ss were independent
Ss were "compliant" if they did as they were told without question; also if they generally went along with general consensus on issues. If Ss decided for themselves their own attitudes, opiniions or plans, neither conforming with nor rebelling against T's wishes, score 6.

12. Each S always worked at own pace----------Common pace aimed at

If Ss started and finished tasks at different times, or if they worked on different levels of material at the same time, score 1. If Ss generally did the same work during the same time period, with common starting and ending times; were on only one unit at a time; if fast workers were required to wait for the slow ones before going on to the next unit, score 6.

13. Ss were active (productive)-------------Ss were passive (receiving)
Refers to the degree to which Ss' predominant mode of activitiy was productive, including talking, creating, doing (active), as opposed to receptive, including listening, watching, reading. Generally, the distinction is between receiving information and producing or creating.

14. Ss had no alternatives--------Ss constantly making choices If Ss didn't decide what to do or when to do it, were simply given and expected to follow directions, score 1. If Ss chose their tasks from many possibilities, and decided for themselves how and when each task was to be done, then score 6.

15. Ss mostly uninvolved in class activities ------Ss highly involved in class activities
If Ss seem bored, passive, uninterested, indifferent, score 1. If Ss appear to be strongly motivated to do what they are doing, if they seem extremely interested, absorbed, engaged, etc., and take an active role in class activities, score 6.

16. Ss appeared unhappy-------------Ss appeared happy
Indicated by, on the one hand, much frowning and/or grumbling, Ss seeming dissatisfied with what they are doing, a lack of enjoyment, and a generally depressed atmosphere; or, on the other hand, by smiling faces and a general high level of warmth, amiability, and enjoyment.

Class Rating Items

17. Creative----------------Uncreative

If the class tried new ways of using materials, or tried new approaches and unusual methods in exploring many topics, score 1. If all subjects were approached in the same standardized way, with no variety in methods or materials, score 6.

18. Tense-------------Relaxed
If Ss and T appeared nervous, anxious, or afraid; if there were frequent misunderstandings, frustration,eruptions of annoyance, score 1. If T and Ss were not guarded or abrupt with one another; if all seemed to enjoy working together; if there were few hostile arguments, general ease of relationships, and little friction,score 6.

19. Rushed----------Leisurely
The degree to which Ss were continually being hurried to get things done,

to meet schedules, etc., or were allowed to take the time they needed with no time pressures and no pushing.

20. Ss all used same materials or books at same time---Diverse materials or books in use at same time
If all Ss were using same textbook, or painting with same type of materials, etc., score 1; if the Ss used different materials, and if a number of different books, reference works, magazines, etc., were in simultaneous use, score 6.

21. Accepting--Rejecting
If there was a good rapport between T and Ss and among Ss, and a general tolerance for, and interest in, idiosyncracies, diverse viewpoints, and behavior, score 1. If the tone was generally harsh, nasty, or critical, and if there was almost no effort on the part of T and Ss to acknowledge/accept the 'validity' of other peoples' feelings/ideas and behavior, score 6.

22. Minimally task-oriented-------------Extremely task-oriented
Refers to the degree to which emphasis was put on getting job(s) done well, etc. At high extreme (6), the task and task requirements seemed to be primary considerations, and decisions were heavily influenced by the task requirements. This rating refers to the resultant orientation and not to whether the impetus was from T or Ss.

23. Minimally person-oriented-----------------Extremely person-oriented
Refers to the degree to which emphasis was put on satisfying the personal needs of class members. Personal needs of Ss and T were primary considerations at high extreme (6). Decisions heavily influenced by requirements (or perceived requirements) of persons in class.

24. Never cooperative----------------------Very frequently cooperative
Refers to the frequency with which Ss worked together, helped each other, and shared ideas and things, etc.

25. Never competitive---------------------Frequently competitive
Refers to the frequency with which Ss seemed to be trying to outdo each other; or T encouraged this; or Ss discussed their relative performance or status.

26. Not at all business-like-------------------Extremely business-like
In a very "business-like" class, there was little extraneous, non-productive or counterproductive activity; there was an air of efficiency and smoothness of operation.

27. Friendly---------------------------------------Hostile
In a friendly class, T-S and S-S social interaction is accompanied by smiling and laughing. People in the class seem to like each other. Playfulness and affection may be evident (score 1). In a very hostile classroom, there may be one or more of the following: fighting, arguing, name-calling, frowning, sarcasm, nagging, or antagonism. A score of 6 would be approaching this, but would be less than the extreme implied by the above list.

28. Not at all carefree, jovial---------------Extremely carefree, jovial
At low end, no joking, laughing, smiling, etc., take place. At other extreme, laughter and joking take place while the Ss are working, and at other times. T treatment of subject-matter may include humor.

29. No rules in evidence-------------------Many rules in evidence
At high extreme, rules may be displayed on bulletin board, or frequently referred to by T or Ss; e.g., silence during tests, no chewing gum allowed in classroom, etc. If there is no explicit evidence of rules, but some generally understood rules do seem to be operating, give intermediate score.

30. Quiet-------------------------------Extremely noisy
At low extreme, there is little noise of any kind (not including background noise; i.e., blowers, noise from other rooms, bulldozers, etc.). At high extreme, there is much noise from Ss, T, and their activities (e.g., talking, singing, yelling, hammering, banging, rattling, rustling, scraping, scratching, squeaking, etc.).

31. Relatively devoid of stimuli-------------------Full of stimuli
In a classroom full of stimuli, there is much to look at, hear, touch, and smell. At the high extreme, the number and variety of things may be almost overwhelming.

32. Repetitive----------------------------Extremely varied
In a repetitive class, there is little variety in the tasks, subject-matter is taught by drill, and the teacher uses the same basic method of teaching for all subjects (score 1). In an extremely varied class, the activities of teacher and students change frequently. There are differences in things done, subjects studied, methods of teaching and approaches to tasks (score 6).

33. Calm------------------------------------Excited
Refers to the degree to which the emotional tone of the class appears to be placid, unruffled, unperturbed, as opposed to a high level of emotional arousal, either of a negative sort (e.g., anger, hostility, etc.), a positive sort (happy boisterousness, eager involvement, etc.), or simply a high level of affective activation which may be neither positive nor negative.

34. Orderly---------------------------------Unruly
In an orderly class, activity shifts are smooth, Ss don't grab for supplies or materials, activities are carried out in a well-regulated way (score 1). In an unruly class, there are many interruptions in activities, activity shifts are very disruptive, there is generally some fighting, loud arguing, boisterous activity, horseplay, noise and/or confusion (score 6). (Different from 33 in that it is possible to be both orderly and excited about something, though possibly not unruly and calm).

35. Rigid regarding procedures------------------Extremely flexible regarding procedures

If T is unwilling to change the prearranged schedule of the day's work, or if Ss are unwilling to adjust to changes in their daily routine or approach to activities, score 1. In a class which is flexible, the Ss and T make frequent adjustments in their daily routine and their approaches to activities (score 6) (the high end includes situation where theredoesn't seem to be a set routine).

36. Random sequence of activities----------------Orderly sequence of activities

When activities are selected by either the T or the S to fit the student's particular needs at a particular time, or if Ss flit from activity to activity with little apparent rationale, the activity sequence is "random", (score 1). When there is an orderly sequence of activities, the T (and possibly the Ss) know ahead of time which activities are to follow next; and activities follow one another in a carefully-planned series (score 6).

37. Behavior was not at all spontaneous----Behavior was extremely spontaneous

Refers to the degree to which behavior in the class seemed free, expressive, uninhibited, uncensored, unhesitant.

38. Untidy------------------------------------Very tidy

An untidy classroom is one in which paper and books are strewn on tables, desks, and floor. Bookshelves and other learning or interest centers are not neat, (score 1). A very tidy classroom is one in which "nothing is out of place." There may be visible signs of class regulations about neatness in the classroom (score 6).

39. Oriented to novel, unusual--------------------Not oriented to novel,

If T or Ss look for or bring up the exotic, paradoxical, strange, or unique aspects of any topic, etc., score 1.

* *

TEACHER RATINGS

40. T very energetic--------------------------T unenergetic

An energetic T is active, forceful, vigorous, constantly busy, etc.

41. T dry------------------T flamboyant, dramatic

A T with a dry manner speaks in a monotonous voice, gestures little, and shows little emotion. (It is possible for a T to be "dry" and alert at the same time.) A "dry" T is straight-forward, undramatic. A flamboyant or dramatic T has an expressive voice, eyecatching mannerisms, and easily holds the children's attention. (T "hams it up.")

42. T emphasized memory, rote------------T emphasized comprehension, analysis

When T emphasizes memory and rote learning, the Ss are expected to know and repeat subject rules, etc., verbatim; and their work closely reflects what the T presents.

A T who emphasizes comprehension and analysis prefers Ss to understand reasons, basic principles, etc., and to be able to explain what they learned and not to repeat material verbatim. T would also present own original thoughts and analysis.

43. T mostly critical (negative)--------------------T mostly praising

A mostly critical T points out errors while overlooking the good points of S(s) work (or criticizes more Ss than she(he) praises).

On the other hand, the T who mentions or emphasizes S(s) successes rather than weaknesses or failures (or, one who praises more Ss than she(he) criticizes), is a mostly praising T.

44. T not at all punitive--------------------------T punitive

A T who was punitive readily punished any deviation from expected classroom behavior. A punitive T elicited desired behavior through fear, etc. Punishment includes verbal chastisement, withdrawal of privileges and the like.

45. T spoke very rapidly----------------------------T spoke very slowly

46. T not at all warm------------------------------T very warm

A warm T puts arm around children affectionately, or speaks kindly to them, etc.; this warmth is not just a reward for good behavior. T conveys liking for Ss.

47. T frequently used ridicule, sarcasm-------------T never used ridicule, sarcasm

If T used caustic remarks or made fun of the Ss to goad them into learning, express her dislike, maintain control, or to discredit S(s) contribution, score 1.

If no such methods were ever used, score 6.

48. T frequently consulted with individuals or small groups---------------------T never consulted with individuals or small groups

Refers to amount of time T functions as expert on call when Ss decide they need information and ideas; (i.e., when T acts as "resource person"); distinguish from #49.

49. T frequently gave individual attention----------T never gave individual attention

A T who gave individual attention frequently spoke to or worked with Ss on a one-to-one basis. T made an effort to go from one S to another to check on their progress and to offer assistance. To distinguish from #48, T may have been the one to initiate interaction.

50. T encouraged exploration-------------------T discouraged exploration
The T who encouraged exploration provided books, materials, opportunities so that the Ss could learn, seek out new information, ideas, etc.; T actively promoted use of these materials and opportunities, and reacted positively to S-initiated exploration.

A T who discouraged exploration placed emphasis on sticking to the subject material covered, and inhibited or showed little interest in S-initiated exploration.

51. T protective, sheltering----------------T not protective
"Sheltering" refers to the extent to which T took steps to protect S(s) from any pain, discomfort, or embarrassment (e.g., T might try to neutralize embarrassment if an S gave an incorrect or inappropriate response), or T tried to prevent S(s) from being harsh to one another.

A T who is not at all protective is one who does not try to defend the Ss but allows them to be aware of their mistakes (not necessarily in a ridiculing or sarcastic way), and does not quickly stop fighting, scapegoating, etc.

52. T appeared uncomfortable-----------------T appeared extremely comfortable, confident

If a T tended to be hesitant, ill-at-ease, tense, or anxious, score 1.

If a T appeared very comfortable with role, was not at all threatened by S questions, disruptions (presence of O), etc., and if T seemed very sure about what T was doing, score 6.

53. T spoke extremely clearly, coherently------T was vague, unclear, incoherent

Includes lucidity, organization, and physical qualities of speech: all factors that may enhance or disrupt communication.

If Ss exhibit failure of understanding by asking questions, lack of reaction, or in other ways, this may indicate poor communication.

54. T not at all permissive---------------------T highly permissive

A permissive T did not maintain tight control, to a large degree let Ss do as they wanted, seldom imposed limits, etc.

55. T unenthusiastic------------------T highly enthusiastic

A highly enthusiastic T conveyed a sense of commitment, involvement, excitement, and interest. T conveyed sense that what is going on is extremely worthwhile, interesting, and important.

56. T sensitive to Ss-------------------------------T insensitive to Ss

A sensitive T is one who attempted to understand the reasons and motives for S's behavior. T attended carefully to what Ss said. T responsive to individual problems and needs.

57. T seldom exercised direct control--------------------T almost always exercised direct control

Refers to the degree to which T was in active charge of, and overtly directing classroom activities. T took a direct and central role in class.

58. T seldom controlled indirectly----------------------T often controlled indirectly

Refers to the degree to which T maintained general charge of class activities without actively and overtly directing them. At upper extreme, T may have used subtle reinforcements to shape class directions, may have encouraged student participation (short of total control) - power was shared, but not given up.

59. T mostly lectures-----------------------------------T never lectures

T was almost always the presenter of planned lessons.

60. T often gave direct and immediate feedback----------------------------T seldom gave direct and immediate feedback

Refers to the degree to which T responded to S work or comments (not "conduct") with immediate information about correctness or incorrectness of approach, answer, etc.

61. T often used humor---------------------------------T never used humor

If the teacher often made remarks that made the Ss (or O) laugh or smile, told jokes, presented material in a humorous way, pointed out funny things that were happening, etc., score 1.

If there were no humorous remarks, etc., score 6.

62. T seldom laughed-----------------------------------T often laughed

63. T promoted S independence, autonomy-------------------------T discouraged S independence, autonomy

If T encouraged Ss to make decisions, to be responsible for helping each other and to pursue, on their own, subjects that particularly interested them, then T promoted independence.

If T gave the impression that the Ss could learn only from T, rejected S suggestions, discouraged independent projects, etc., score 6.

64. T discouraged open S expressiveness------------------------------T encouraged open S expressiveness

If T discouraged, ignored, or suppressed Ss' expression of their own ideas, feelings, needs, etc., then T discouraged open S expressiveness.

If T was pleased and interested when Ss explored new approaches to a topic, expressed their own ideas, feeling, needs, etc.; if T welcomed Ss' original solutions or suggestions, then T encouraged open S expressiveness.

65. T actively sought and accepted------------------T neither sought nor accepted
S procedural suggestions S procedural suggestions

Refers to the degree to which T appeared actively interested in eliciting S feedback for developing class schedule, routine, procedure, etc.

66. T gestured very little-------------------------T gestured constantly

Refers to use of deliberate, purposeful arm, hand, head, or body movements, not nervous movements, etc.

67. T voice varied, expressive---------------------T voice monotone

T used differential emphases; changed volume, intonation, inflection, etc. A T who spoke in a monotone has relatively unvarying volume, intonation inflection, etc.

68. T accepted broad range--------------------------T accepted narrow range of
of behavior behavior

At one extreme, T accepts a very broad range of S behavior; at the other extreme, T has a rigid set of expectations for acceptable behavior and tries to stop behavior that does not meet these expectations. An intolerant T would treat as discipline issues things that a tolerant T would treat as acceptable variations of style or approach. Include T response to noise, breakages, movement, individual pace, dress, emotion, speech patterns, cultural differences, etc.

69. T gave more attention to boys-----------------T gave more attention to
girls

70. T impatient------------------------------------T very patient

Refers to the degree to which T shows anger or irritation or punishes Ss who are slow, sloppy, fail to understand, etc. A patient T tolerates varying paces, etc., repeats or rewords explanations, when needed, with no sign of irritation, weariness, or defensive hostility.

Spencer Foundation Study
Montgomery County Public Schools

Teacher Description of Classroom Activities

Name________________________ School__________________________

Please check the point within each of the following scales which most accurately describes your class. Please respond according to what actually happens, not what you think should happen, or what you would like to have happen.

Each scale has six points. We have labelled the two end points of each. You should check an intermediate point if: a) neither end is true, b) each end is true partially, or some of the time, or c) the two ends are combined in some way. For example, if an item were: 1 - The teacher cleans the blackboard..... 6 - The students clean the blackboard; you would check an intermediate point if a) neither cleans the blackboard, b) sometimes the teacher and sometimes the students clean it, c) the teacher and students work together to clean it.

If you have difficulty with any item, please mark it as best you can and write in any comments you have. Thank you very much.

1. Time Scheduling. All classroom activities occur according to prearranged time schedule.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Nothing prescheduled; activities all occur as interests dictate.

2. Free time. Almost all time is free for students to pursue own interests.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

There is little or no free time available (an hour or two a week at most).

3. Rule-making. Classroom rules are made by the teacher.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Classroom rules are made by the children.

4. Rule-enforcing. Classroom rules are enforced by the teacher.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Classroom rules are enforced by children.

5. Defining goals. The children decide what they want to learn.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The teacher (and/or school guidelines) determines what the children should learn.

6. Mobility.

Students leave the classroom with permission. 1 ____
2 ____
3 ____
4 ____
5 ____
Students leave classroom freely without permission. 6 ____

7. Material development.

Most of the instructional materials used in this class are developed or adapted by the children. 1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
Most of the instructional materials used in this class are developed by educational firms, or the teacher.

8. Student choice.

Students choose what they want to work on. 1 ____
2 ____
3 ____
4 ____
5 ____
The teacher determines the students' activities. 6 ____

9. Classroom arrangement.

Teacher decides on arrangement of classroom furniture and equipment. 1 ____
2 ____
3 ____
4 ____
5 ____
Students decide on arrangement of furniture and equipment. 6 ____

10. Changes.

The arrangement of furniture and equipment has changed every week or so, this year. 1 ____
2 ____
3 ____
4 ____
5 ____
The arrangement has changed once or not at all. 6 ____

11. Study places.

Each child works mostly at his own desk or table.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

All work is divided among a variety of places (centers) in and out of the classroom, with no "home base" seat.

12. Other adults (not aides).

Parents or volunteers participate in activities in the classroom 15 hours per week or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Parents or volunteers participate in activities 1 hour per week or less.

13. Peer help.

Students frequently help one another in class.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students do not help one another in class.

14. Class as whole.

On a typical day, teacher attention is directed to the class as a whole 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Attention directed to class as whole almost never.

15. Subgroups.

On a typical day, teacher attention is directed to subgroups of the class 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Attention directed to class subgroups almost never.

16. Individuals.

On a typical day, teacher attention is directed to individual students 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Teacher attention is directed to individual students almost never.

17. Resource role.

The teacher acts as a "resource person" to whom students working on projects come when seeking information and ideas 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Teacher almost never acts as a "resource person".

18. Discussion leader. (student topics)

On a typical day the teacher acts as a discussion leader on topics initiated by students 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Teacher almost never acts as a discussion leader on topics initiated by students.

19. Discussion leader. (own topics)

On a typical day the teacher acts as a discussion leader on topics of his/her own choice 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Teacher almost never acts as discussion leader on topics of own choice.

20. Planned lesson presenter.

On typical day, the teacher gives prepared oral presentations 3/4 of the time or more.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Teacher almost never gives prepared oral presentations.

21. Approaches to learning.

Students develop and use their own methods of learning and solving problems.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The teacher describes or demonstrates effective methods for learning and solving problems.

---

22. Participation.

A student may choose not to participate in any class activity.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students are expected to participate in all class activities.

---

23. Independent study.

There is almost no independent study time available (i.e., without specific assignment).

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

At least one hour of independent study time is available every day.

---

24. Subgrouping.

Students group themselves according to their own criteria.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The teacher places pupils in appropriate subgroups.

---

25. Subgroup changes.

Subgroups do not change more than two or three times during the school year.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Subgroups change every two or three days or more.

---

26. Evaluation focus.

Evaluation procedures are the same for all students in the class; same standards used for all.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Evaluation procedures are different for each student.

---

27. Evaluation planning.

The teacher plans all evaluation procedures.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students participate in planning all evaluation procedures.

28. Activity planning. Students plan the sequence of their individual and group activities.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The teacher plans the sequence of individual and group class activities.

29. Different activities. Many different activities are almost always going on simultaneously.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Almost all the time the children are all engaged in the same activity.

30. Material use. Children are expected to use materials as instructed.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children are free to experiment with and manipulate materials as much as they like.

31. Observability. Children are almost always within sight of teacher.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Little effort is made to keep children within sight of teacher.

32. Task initiation. The teacher usually starts children on their tasks.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children usually start themselves on tasks.

33. Plan changing. Classroom and lesson plans are stable, not usually subject to change.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Plans are changed very frequently.

---

34. Discussions.

If children are interested, discussion are allowed to wander off in any direction.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Discussions kept closely related to topic being considered.

---

35. Procedures.

The teacher determines almost all classroom procedures.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students determine almost all classroom procedures.

---

36. Talking.

Students may talk at any time without being called on or "recognized".

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students may talk in class only when called on.

---

37. Help with work.

Almost all help is initiated by students asking for it.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Almost all help is initiated by the teacher's seeing the need for it.

---

38. Evaluation.

Only the teacher evaluates student work.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Students participate in all evaluations of their work.

---

39. Problems.

Children get immediate help with any problems.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children are expected to solve most problems themselves.

---

40. Personal expression.

Children spend one or two hours a day talking about personal experiences, beliefs and opinions.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children spend an hour a week or less talking about personal experiences, beliefs and opinions.

41. Main directing force.

The teacher provides the main directing force in the class.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The children provide the main directing force in the class.

42. Getting materials.

Each child can get material or equipment out at any time.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Each child can get material or equipment only during designated periods, or with permission.

43. Rule clarity.

This class has numerous rules for acceptable behavior.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

There are very few rules for behavior in this class.

44. Commonality.

Learning objectives are the same for all children in the class.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Learning objectives are set for each child separately.

---

45. Pacing.

Most class activities during the day require children to work at about the same pace; topics are expected to be mastered by specified times during the year.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Each child works at his or her own pace, with no timing objectives.

---

46. Conflicts or arguments.

Conflicts or arguments between children are stopped quickly by the teacher.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children are expected to resolve their own conflicts or arguments.

---

47. Best work.

Each day, the children who did the best work get public recognition for it in class (e.g., by posting on bulletin board).

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The class is never informed which children did the best work.

---

48. Movement in class.

Children move around the classroom at will.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Children leave their seats only during designated periods, or with the teacher's permission.

---

49. Organization of tasks.

Most learning tasks in this class have a clear step-by-step organization and sequence.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

Most of the learning tasks are "open-ended".

---

50. Memorization.

None of the work in this class involves memorizing. 1 ____
2 ____
3 ____
4 ____
5 ____
Most of the work in this class involves memorizing. 6 ____

51. Basic principles.

Children spend most of their time trying to discover and apply basic principles. 1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
Children spend little time discovering and applying basic principles.

52. Task emphasis.

The importance of getting work done and done well is frequently stressed in this class. 1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
There is little overt emphasis on getting work done and done well in this class.

53. Time in groups.

The children do almost all their work as individuals or as a total class. 1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
The children do almost all their class work in small groups.

54. Evaluations of each other's work.

The children do not evaluate each other's work. 1 ____
2 ____
3 ____
4 ____
5 ____
6 ____
The children evaluate each other's work very frequently.

---

55. Decisions about needs.

The teacher decides what specific tasks the children need to work on at any given time.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The children decide what tasks they need to work on at any given time.

---

56. Emphasis on enjoyment.

Very strong emphasis is put on having a pleasant, happy and friendly time in this class.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

There is little overt emphasis on having a pleasant, happy and friendly time in this class.

---

57. Amount of testing.

There is virtually no testing in this class.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

There is some testing every day or two in this class.

---

58. Ability mixture.

Children are not grouped according to ability or achievement level in this class for any subject.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

The children in this class are grouped according to ability or achievement level for all subjects.

---

59. Planning sessions.

Teacher and children participate in joint planning sessions several times a week.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

There are no joint planning sessions.

---

60. Homework. The children in this class never have homework.

1 ____
2 ____
3 ____
4 ____
5 ____
6 ____

All children in this class have homework to do every day (including weekends).

---

61. Number of teachers. Please write in the number of teachers who give instruction to the children of your class during the course of a typical day. ____

---

62. Number of room changes. Please write in the number of times the children in your class change rooms during a typical day. ____

---

63. Number of "departmentalized" subjects. Please write in the number of subjects taught to your children on a "departmentalized" basis (i.e., different subjects with different teachers). ____

---

64. Hours with class. Please write in the average number of hours per day that you spend with the children in your own class (or "homeroom" or "core" if these apply). ____

Spencer Foundation Pro[illegible]t
A-244, Washington Cent[illegible]
Montgomery County Public School.

Teacher Views of Students

On the following pages, we have listed the children in your class who are participating in our study and have also listed a series of attributes. We would like you to make judgments about each of the attributes for each child, relative to the other children in your class, and to assign ratings according to the following key:

a rating of 1	indicates that the attribute is not at all or only slightly characteristic of the child (compared with others in the class)
a rating of 2	indicates that the attribute is moderately characteristic of the child (compared with others in the class)
a rating of 3	indicates that the attribute is substantially characteristic of the child (compared with others in the class)
a rating of 4	indicates that the attribute is highly or extremely characteristic of the child (compared with others in the class)

Please write the appropriate numbers in the spaces after each child's name for each of the judged attributes. If a child has changed during the year, the rating should refer to his or her status at the present time. It would be best to rate all children on one attribute, then all children on the next, and so on. Please try to think about each attribute separately, without regard for how you may have rated any of the others. Since the ratings are to be relative to the children in your class, each rating score should be assigned to at least a few children for each attribute.

Those of you who have team arrangements can divide the task so that each teacher rates the children in his/her own homeroom (or any other division you agree on).

Thank you very much.

																			Highly active, energetic
																			Learned much this year
																			Self-controlled
																			Curious about many things
																			Works well with other children
																			Not satisfied until good understanding of topic or task is achieved
																			Highly involved in class activities
																			Perseveres with tasks
																			Looked up to by other children
																			Cooperative, does what is asked
																			Works hard in class